The 1999 Fishwheel Project on the Nass River, BC

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THE 1999 FISHWHEEL PROJECT ON THE NASS RIVER, BC

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ABSTRACT

Alexander, R.F. 2001. The 1999 fishwheel project on the Nass River, BC. Can. Manuscr. Rep. Fish. Aquat. Sci. 2588: xi + 107 p.

Four fishwheels were operated on the lower Nass River from 7 June to 30 September 1999. The fishwheels operated for a total of 9,073 h and captured 74,201 salmon. Catches of adult salmon included 41,545 sockeye, 22,019 pink, 6,393 coho, 3,476 chinook, 641 steelhead, and 127 chum. Of these, 10,755 sockeye, 4,121 coho, 2,502 chinook salmon, and 571 steelhead were tagged. Totals of 513 chinook, 1,959 sockeye and 774 coho salmon from the catch were successfully aged using scales. A total of 10,019 tagged fish were later recovered (or observed) at the Meziadin fishway, in in-river fisheries and on tributaries of the Nass River. From 23 July to 25 August, a total of 7,858 sockeye were selectively harvested from all the fishwheels as part of escapement surplus to spawning requirements (ESSR) fishery. Counts of marked and unmarked fish from the Meziadin fishway and in-river harvests were used to compute net escapement estimates for sockeye (210,957) and coho salmon (64,059). The coho estimate represented only a portion of the total coho escapement because the fishwheels did not operate through the entire coho run and recovery efforts were confined to an early run stock (Meziadin River). The net chinook escapement (11,544) was derived by a mark-recapture estimate (spawning ground surveys) minus estimated in-river harvests above Grease Harbour tagging sites. The four fishwheels combined caught an estimated 28.0% of the chinook run, 9.9% of the coho run, and 18.0% of the sockeye run. Including subsequent in-river harvests, an estimated 20,609 chinook and 256,022 sockeye salmon entered the Nass River in 1999. Daily tag release (at the fishwheels) and recovery data (at the Meziadin fishway) were used to reconstruct the sockeye abundance in the lower river and assess the within-season variation in the portion of the sockeye run caught by the fishwheels.

RÉSUMÉ

Alexander, R.F. 2001. The 1999 fishwheel project on the Nass River, BC. Can. Manuscr. Rep. Fish. Aquat. Sci. 2588: xi + 107 p.

Quatre filets rotatifs furent en opération sur la section inférieure de la rivière Nass à partir du 7 juin au 30 septembre 1999 pour un total de 9,073 heures et ont capturé 74,201 saumon. Des saumon adultes capturés nous comptons 41,545 saumon rouge, 22,019 saumon rose, 6,393 saumon coho, 3,476 saumon quinnat, 641 truites arc-en-ciel anadromes et 127 saumon kéta. De ceux-ci, 10,755 saumon rouge, 4,121 saumon coho, 2,502 saumon quinnat, et 571 truites arc-en-ciel anadromes furent marqués. Nous avons réussi à déterminer l'âge de 513 saumon quinnat, 1,959 saumon rouge, et 774 saumon coho en nous servant des écailles. Nous avons récupéré (ou observé) un total de 10,019 poissons marqués à la passe migratoire Meziadin, dans les pêches en rivière et dans les tributaires de la rivière Nass. A partir du 23 juillet jusqu'au 25 août un total de 7,858 saumon rouge furent récoltés de manière sélective de tous les filets rotatifs dans le cadre de la pêche excédent des besoins en géniteurs (ESSR). Nous nous sommes basés sur le compte de poissons marqués et non marqués de la passe migratoire Meziadin et de ceux capturés dans la rivière pour calculer l'estimation de l'échappée nette pour le saumon rouge (210,957) et le saumon coho (64,059). L'estimation du saumon coho ne représentait qu'une portion de l'échappée totale du coho car les filets rotatifs n'étaient pas en opération durant toute la remontée du saumon coho et les efforts de récupération ont été limités au début de la remontée (Rivière Meziadin). L'échappée nette du saumon quinnat (11,544) fut dérivée de l'estimation de la récupération marquée (recherches de la frayère) moins l'estimation de la récolte dans la rivière en amont du site de marquage Grease Harbour. Les quatre filets rotatifs ont capturé approximativement 28.0% de la remontée du saumon quinnat, 9.9% de la remontée du saumon coho, et 18.0% de la remontée du saumon rouge. Y compris les récoltes subséquentes dans la rivière, une estimation de 20,609 saumon quinnat, et 256,022 saumon rouge sont entrés dans la rivière Nass en 1999. Nous nous sommes servis de la remise à l'eau journalière des poissons étiquetés (aux filets rotatifs) et des données de récupération (à la passe migratoire Meziadin) pour reconstruire l'abondance du saumon rouge dans la section inférieure de la rivière afin de déterminer les variations qui prennent place durant la saison dans la section de la remontée du saumon rouge capturé par les filets rotatifs.

INTRODUCTION

This report documents the results of the eighth consecutive year of a fishwheel project on the Nass River (Link et al. 1996; Link and English 1996, 1997; Link and Gurak 1997, Link 1999; Link et al. 2001; Alexander and Link 2001; hereafter referred to as "Annual Reports"). This report documents methods, fishwheel catches and effort, tagging and mark-recapture data, population estimates, and biological and age information obtained from the 1999 season.

The objectives of the 1999 Nass River fishwheel project were to:

1. Use the fishwheels to capture, tag, and recapture sockeye salmon (*Oncorhynchus nerka*) for use in estimating the in-season escapement of Nass sockeye salmon;

2. Use the fishwheels to conduct a harvest of sockeye if an escapement surplus to spawning requirements (ESSR) fishery was approved by Fisheries and Oceans Canada;

3. Generate post-season estimates of the escapement of chinook (*O. tshawytscha*), sockeye, coho (*O. kisutch*), and steelhead (*O. mykiss*) returning to the Nass River and document the migration timing of each species; and

4. Collect and summarize biological information from fish captured in the fishwheels.

The steelhead escapement estimates have been summarized in Link et al. (1999).

Study Area

The Nass River drains 20,500 km^2, has an average annual discharge of 813 m^3s^{-1} and ranges from 24 m^3s^{-1} to 5437 m^3s^{-1} within years (Holland 1976). The river originates in the Skeena Mountains and flows south and southwest for approximately 400 km, entering the Pacific Ocean at Portland Inlet on the north coast of British Columbia (Fig. 1).

METHODS

Fishwheel Operation

Four fishwheels (Meehan 1961; Donaldson and Cramer 1971) similar to those described by Link and English (1996) were operated on the Nass River in 1999. Two fishwheels were operated near the village of Gitwinksihlkw (approximately 46 river km from sea) and two were operated 17-20 km upstream of Gitwinksihlkw near Grease Harbour (Fig. 1 and Appendix A). The design of the fishwheel used on the Nass has changed significantly since 1992. Link and English (1996) document the shift in 1993 from a "Taku River" two-basket wooden fishwheel design to a three-basket design that was largely based on photographs of fishwheels used on the Columbia River about 100 years ago (Donaldson and Cramer 1971). Since 1993, there has been a gradual transition from wood to aluminium as the building material for the fishwheels

(documented in the Annual Reports). Virtually all of the fishwheel components were made of aluminium by 1997.

The nylon netting which lines the fishwheel basket has varied across the years. From 1992 until 1995, all fishwheels were fitted with 9.8 cm or $3^{7}/_{8}$" *13x16* knotted salmon seine net. In 1996, fishwheels 2 and 4 were fitted with a smaller 3.8 cm mesh (1½ " stretched, knotless nylon mesh, BL 210-60). Since 1997, all four of the Nass River fishwheels were fitted with the smaller 3.8 cm mesh.

Daily maximum and minimum water temperatures (°C) and levels (m) at Gitwinksihlkw were recorded from a wooden staff gauge secured on the canyon wall just below fishwheel 2.

In this report, any reference to the Gitwinksihlkw fishwheels refers to fishwheel 1 and fishwheel 2 and any reference to the Grease Harbour fishwheels refers to fishwheel 3 and fishwheel 4.

Fishwheel Effort and Catch

Daily fishing effort of the fishwheels was measured in two ways. First, total effort was measured as the total time each fishwheel was fishing from midnight to midnight each day. This effort value gave an indication of the amount of down time (non-operational time) associated with each date. Second, the effort used to calculate catch per unit effort (CPE, fish per hour) was measured as the number of hours fishing that went into obtaining each day's catch. These two effort values were different on most days because the time of the last sampling session on each day varied; this affected how much effort went into a given day's catch. For example, if the last sampling session on day *t* finished at 2200 h, and on day *t+1* the last sampling session ended at 2000 h (all fish were removed after each session and the fishwheel fished continuously through day *t* and *t+1*), only 22 h of fishing effort went into obtaining the catch on day *t+1*, whereas the total effort for day *t+1* would be 24 hours as there was no "down time". The fishing effort on day *t+1* could also exceed 24 h if the last sampling session on day *t* was earlier than the last sampling session on day *t+1*.

The speed of each fishwheel was determined each day by measuring the time required for the fishwheel to complete three revolutions. This value was converted to revolutions per minute (RPM). The arithmetic mean of the measurements was used when the fishwheel speed was measured more than once in a day.

Tagging

As in previous years, spaghetti tags and operculum tags were used for marking fish from the fishwheels and were used later for generating mark-recapture population estimates. Numbered spaghetti tags (Floy Model FT-4)[3] were applied to sockeye (yellow) and coho (red), numbered operculum tags (Ketchum kurl-lock tag, No. 3)[4] to chinook, and numbered orange or white anchor "T-bar" tags (Floy FD-68B) were applied to steelhead. Sockeye were only tagged

[3] Floy Tag and Manufacturing Co. Inc., 4616 Union Place N.E., Seattle, WA 98105 USA
[4] Ketchum Manufacturing Sales Ltd., 396 Berkley Ave., Ottawa, Ont., K2A 2G6, Canada

at the Gitwinksihlkw fishwheels; chinook, coho and steelhead were tagged at all fishwheels at Gitwinksihlkw and Grease Harbour. The white and orange T-bar tags were applied to steelhead that were captured at Gitwinksihlkw and Grease Harbour, respectively. The spaghetti and anchor tags were applied through the dorsal musculature near the posterior end of the dorsal fin with a stainless steel needle (Floy FT-4 applicator) and a tagging gun (Dennison Mark II Regular Scissor Grip), respectively. The operculum tags were attached to the left opercle plate of chinook salmon using a Ketchum operculum plier. Pacific lamprey were marked with a single-hole paper punch by placing a 6 mm diameter hole in the dorsal area of the caudal fin (fish caught in fishwheels 1 and 2) and through the dorsal fin (fish caught in fishwheels 3 and 4). The handling and tagging procedures for salmon used in 1999 were the same as those used in previous years (see Annual Reports).

Genetic Stock Identification

Genetic sampling of sockeye and coho was conducted at the Gitwinksihlkw fishwheels in 1999. Genetic sampling of steelhead was conducted at all four fishwheels and at the Meziadin fishway. Genetic samples from coho were also collected at the Meziadin fishway in 1999. A small piece of adipose tissue was hole-punched from fish that were sampled at the fishwheels or fishway and preserved in 95% ethanol (within small vials). The purpose of the sampling was to determine if DNA characteristics can successfully discriminate individual stocks in mixed stock samples and whether the genetic information could help define population structure and within-species diversity (i.e., conservation concerns). Samples collected at the fishwheels were to be used to estimate the stock composition of the fishwheel catch. Genetic samples were shipped to DFO Prince Rupert (coho, sockeye) and MELP Smithers (steelhead) for analysis. Results from the analyses are not presented in this report.

Harvesting

A portion of the sockeye catch in the fishwheels was harvested under an Excess to Spawning Escapement Requirement (ESSR) license granted to the Nisga'a Tribal Council by the Department of Fisheries and Oceans for the period 23 July to 25 August 1999. Fish to be harvested were dipnetted from the holding pens in the fishwheel pontoons, bled by breaking the base of the gill arch, and placed in totes of flaked ice. Harvested sockeye were transported in totes to a processing plant in New Aiyansh for heading and gutting, and then were shipped and sold in Vancouver.

Tag Recovery

Fish tagged at the fishwheels were recovered throughout the Nass River watershed using a variety of techniques. The majority of tagged sockeye and coho salmon were counted and/or recovered at the Meziadin fishway (150 river km upstream of the fishwheels; Haugan et al. 1989; Fig. 1). Tagged chinook salmon were recovered primarily during the spawning grounds surveys. Recoveries of tagged salmon were also obtained from the fishwheels (released back to the river live) and in-river net and sport fisheries.

Since 1998, a reward program has been implemented to encourage fishers to return any tagged fish captured during in-river fisheries. Each returned tag gave the returnee one chance in each of three separate draws of $250. The draws take place in January, several months after the fishery, and a public announcement of the selected winners is made to all the Nisga'a communities. Posters were distributed around the Nass Valley describing the reward program and catch-monitoring interviewers encouraged fishers to return any tags that were captured during fishing activities. The information obtained from the tag recovery program was used to assess the relative participation rate of fishers returning tags from in-river fisheries and estimating tag removal rates.

The field crew working at the Meziadin fishway counted every tagged fish that passed through the fishway, and captured and recorded numbers from as many fish as possible, without excessively delaying the migration of fish. Diverting tagged fish into a pen adjacent to the counting chute captured a portion of each day's tagged fish. The fish were then dipnetted out of the holding pen, the portion of the tag containing the tag number was cut off with scissors and the fish was released upstream of the fishway. With their tags clipped, the crew would know if a tagged fish had dropped back below the falls and re-ascended the fishway. The clipped tag was immediately obvious in the counting chute and a complete count of tagged fish using the fishway more than once could be obtained.

Escapement Estimates

In-season Escapement Estimates

In-season population estimates for sockeye salmon were derived using two methods. The first method provided escapement estimates using pre-season estimates of the combined catchability coefficient for the Gitwinksihlkw fishwheels, 1 and 2. Since 1997, period-specific catchability estimates have been used. Period-specific catchability estimates account for apparent within season changes in catch rates of the fishwheels. These factor-based escapement estimates were used in June and were based on estimated catch rates of the Gitwinksihlkw fishwheels from 1994 to 1997. We excluded catch rates from 1998 given the unusually low water levels and catch rates experienced in that year (Alexander and Link 2001). The second method used tag recovery data from the Grease Harbour fishwheels once sufficient numbers of tagged and untagged sockeye were recovered to derive a reliable mark-recapture estimate (Link and English 1996). In 1999, the mark-recapture estimate was considered the better of the two estimates by 1 July.

Post-season Escapement Estimates

Post-season population estimates were calculated for sockeye, coho, and chinook salmon using the tag recovery information from the Meziadin fishway and spawning ground surveys. These data were pooled to include fish tagged and examined over the entire run. The post-season escapement estimates were made using the adjusted Petersen formula (Ricker 1975). For the sockeye and coho estimates, the fish examined at the Meziadin fishway were used as the recapture sample (C in the Petersen formula; Ricker 1975). For chinook salmon, live counts (Meziadin fishway) and dead fish from the spawning ground surveys were pooled and used as

the recapture sample to generate a population estimate above Grease Harbour. Confidence limits for the mark-recapture estimates were determined using Pearson's formulae (Appendix II of Ricker 1975).

For the sockeye estimate, the number of tags applied at Gitwinksihlkw was adjusted to account for a 20% selective tag removal rate from in-river fisheries and mortalities above the tagging sites (based on recommendations by Link and Gurak (1997)).

For the coho estimate, the number of tags applied at the Nass fishwheels was adjusted downward to account for availability of tags to be recovered at Meziadin fishway and for a 10% selective tag removal rate from in-river fisheries and mortalities above the tagging sites (based on recommendations by Link and Gurak (1997)). Availability of tag recovery at Meziadin was based on the mean travel time of tagged coho that reached the fishway in 1999 and the last date of operations at the fishway.

For the chinook estimate, the tags that were applied at the four fishwheels were adjusted (censored) to account for tag loss associated with mortality (5%) and selective removal within fisheries (assuming only a 30% compliance of tags recovered by fishers). We used a lower tag return compliance for chinook in 1999 than in other years (usually 50%) due to a suspected lower incidence of tag returns during early-to-mid July when illegal harvests of chinook were reported to DFO (Rob Melvin, DFO-New Aiyansh, pers. comm.).

Run Reconstruction

Daily sockeye salmon abundance at the Gitwinksihlkw fishwheels was reconstructed using tag recovery data from the fishway (Link and English 1996) and each day's abundance was compared to fishwheel catches to examine the variation in the estimated portion of the run the fishwheels caught through time. This was done to assess the suitability of the fishwheels as an in-season index of the sockeye salmon escapement to Gitwinksihlkw, and represented the sixth year of baseline data as an in-season index. The run reconstruction was possible because daily catch and tag totals from the fishwheels and the Meziadin fishway were known, as were the travel times for the tagged fish recovered at the fishway.

Age and Length Sampling

A portion of each day's catch in the Gitwinksihlkw fishwheels was sampled for scales, length and sex. Both fixed-size sampling and proportional sampling was done in 1999. Up to 20 chinook per day were sampled for scales and nearly all tagged chinook were measured; for sockeye, approximately 10% of the catch was sampled (scales and length). Up to 25 coho salmon per day were sampled for scales and nearly all tagged coho were measured. The majority of the steelhead captured in the four fishwheels were sampled for scales, length, and sex. The nose-fork length was measured (to the nearest cm) using a fabric measuring tape affixed to the inside of the tagging tray. Jacks were defined as chinook salmon less than 50 cm, sockeye salmon less than 45 cm and coho salmon less than 40 cm. Two scales were taken from the preferred area for sockeye and coho, and five scales were collected from chinook and steelhead. Scales were mounted on numbered, gummed scale cards. Excluding the steelhead samples, scale

samples were sent to the Department of Fisheries and Oceans Scale Lab in Nanaimo, BC. The steelhead samples were sent to the Ministry of Environment, Lands and Parks office in Smithers, BC.

Fish ages are presented using Gilbert-Rich notation where the first digit represents total age and the second digit denotes the number of winters the fish resided in fresh water since egg deposition. The daily catch of adult fish of each species at Gitwinksihlkw was used to derive species-specific daily CPE (catch per unit effort) and these were used to weight the age composition data for chinook and coho. The age data for sockeye salmon were weighted with the reconstructed abundance obtained from tag recovery data. Sex was determined from visual inspection of the fish. However, because many of the fish were ocean-bright, it was difficult to differentiate between males and females. Therefore the sex data are not considered reliable and are not summarized here.

RESULTS

Fishwheel Operation

The level of the Nass River at Gitwinksihlkw ranged from a maximum of 8.2 m in mid-June to a minimum of 0.9 m in late September 1999 (Table A-1). During the period of operating the fishwheels, 7 June to 30 September, the average water level at Gitwinksihlkw was 2.7 m. The water level showed considerable day-to-day variability throughout the season with a steadily declining trend from a peak level in mid-June to late September (Fig. A-1). Water levels in 1999 were above the average levels observed between 1992 and 1998; but were within the level of efficient operational of fishwheels (i.e., 1.8 m to 4.0 m; Fig. A-1). Water temperature ranged from 8.0 °C to 13.0 °C over the same period (Table A-1; Fig. A-1).

Fishwheels 1 and 2 were operated in the same locations as from 1992-1998 and 1994-1998, respectively. Fishwheels 3 and 4 were operated in the same locations as for most of 1994, and all of 1995-1998. Small changes (<100 m) in the position of fishwheels relative to the bank were common in 1999.

Fishwheel Effort

The Gitwinksihlkw fishwheels were operated from 7 June to 30 September and the Grease Harbour fishwheels from 7 June to 20 September for a combined total fishing time of 9,073 h (Table A-2). Combined, the four fishwheels fished 96.2% of the time that they were in operation (Fig. 2). With the exception of high water levels between 11 June and 22 June, the fishwheels operated almost continuously until late August and September (Fig. 2). Fishwheels 1 and 2 fished generally at slower speeds (1-3 RPM) than fishwheels 3 and 4 (2-3 RPM).

Catches and Catch Per Unit Effort

A total of 78,441 salmon (74,201 adults, 4,240 jacks) were captured in the fishwheels in 1999 (Table 1). The sockeye salmon catch was the largest (44,803), followed by pink (*O. gorbuscha*; 22,019), coho (7,009), chinook (3,842), steelhead (641), and chum (127). Fishwheel

2 captured the most fish (27,379), followed by fishwheel 1 (18,541), fishwheel 4 (17,718), and fishwheel 3 (14,803).

The CPE for chinook salmon in fishwheels 1 and 2 showed the majority of the run passing Gitwinksihlkw by early July (Fig. 3). Catches at Gitwinksihlkw peaked on 2 July with 132 adults caught (30 in fishwheel 1 and 102 in fishwheel 2; Table B-1). The 50% point of the cumulative CPE for fishwheels 1 and 2 occurred on 3 July and 2 July, respectively. The total catches in fishwheel 3 and 4 (Grease Harbour) were 1.6 times higher than the total catches in fishwheels 1 and 2 (Fig. 3; Table B-1). The CPE for chinook salmon in fishwheels 3 and 4 showed a bimodal pattern with the run interrupted by the high water levels in mid-June (Figs 3 and A-1). The peak catches of adult chinook at Grease Harbour occurred on 2 July for both fishwheel 3 (101) and fishwheel 4 (148). However, the 50% point of the cumulative CPE for fishwheels 3 and 4 occurred on 9 July and 11 July, respectively, with a second peak in abundance occurring in mid-July (Fig. 3).

The early part of the sockeye run was interrupted by the high water in mid-June and there was a large spike in catches and CPE in mid-July once the high water had receded and the run moved past Gitwinksihlkw (Fig. 4; Table B-2). The CPE for sockeye salmon in fishwheels 1 and 2 showed the majority of the run passing Gitwinksihlkw by mid-July (Fig. 4). Catches at Gitwinksihlkw peaked on 8 July with 1,451 adults caught (678 in fishwheel 1 and 773 in fishwheel 2; Table B-2). The pattern of CPE for sockeye salmon versus time was similar for both fishwheels 3 and 4 (Fig. 4). Catches at Grease Harbour peaked on 11 July with 1,155 sockeye captured, 526 in fishwheel 3 and 629 in fishwheel 4 (Table B-2). The 50% point of the cumulative CPE for fishwheels 3 and 4 occurred on 18 July and 17 July, respectively. Table B-3 shows the number of sockeye that were harvested from each of the fishwheels during the ESSR fishery, 23 July to 25 August.

The first adult coho salmon was captured on 23 July at Gitwinksihlkw (fishwheel 1; Table B-4). The CPE for coho salmon showed two distinctive peaks in abundance at Gitwinksihlkw in mid-August and late August (Fig. 5). The peaks in catches for both fishwheel 1 and 2 occurred on 12 August (160) and 30 August (149). At Grease Harbour, peak abundance occurred in late August with a peak catch of 175 coho for fishwheel 3 and 4 on 31 August (Table B-4; Fig. 5). The 50% point of the cumulative CPE for fishwheels 1, 2, 3, and 4 occurred on 25 August, 22 August, 26 August, and 29 August, respectively. We assumed that the fishwheels did not operate through the entire coho run and the fishwheel catches represented early-to-mid-run stocks, presumably coho stocks destined above the Cranberry River.

The CPE for steelhead in fishwheels 1 and 2 showed the majority of the run passing Gitwinksihlkw by late August (Fig. 6). The 50% point of the cumulative CPE for fishwheels 1 and 2 occurred on 31 August and 26 August, respectively, with fishwheel 2 catching more fish (276 vs. 56; Table B-5). At Grease Harbour, the CPE for steelhead in fishwheels 3 and 4 showed the majority of the run passed by early September (Fig. 6). The 50% point of the cumulative CPE for fishwheels 3 and 4 occurred on 27 August and 5 September, respectively, with fishwheel 4 catching more fish (199 vs. 110; Table B-5). As with the coho run, we assumed that the fishwheels did not operate for the entire steelhead run.

The CPE for pink salmon at Gitwinksihlkw showed a distinct peak in mid-August with smaller peaks in early August and mid-September (Fig. 7). The 50% point of the cumulative CPE for fishwheels 1, 2, 3, and 4 occurred on 15 August, 17 August, 21 August, and 26 August, respectively, and the Gitwinksihlkw fishwheels caught five times as many pinks than the Grease Harbour fishwheels (Table B-6). The largest catch of pink salmon occurred on 12 August in fishwheel 1 (685; Table B-6). The first pink salmon was caught on 9 July in fishwheel 1.

The CPE for chum salmon showed a protracted run timing pattern from mid-July to September (Fig. 8). The 50% point of the cumulative CPE for fishwheels 1, 2, 3, and 4 occurred on 28 August, 7 September, 23 August, and 5 September, respectively, and the Gitwinksihlkw fishwheels caught twice as many chum than the Grease Harbour fishwheels (Table B-6). The first chum salmon was caught in fishwheel 1 on 17 July (Table B-6).

Catches of other salmonid species (Table B-7) included 1,189 Dolly Varden (*Salvelinus malma*), 155 whitefish (*Prosopium cylindraceum*), 97 cutthroat trout (*O. clarki*), and 17 rainbow trout (*O. mykiss*). Catches of non-salmonids species (Table B-8) included 185 Pacific lamprey, 24 longnose suckers (*Catostomus catostomus*), 65 northern pike minnows (*Ptychocheilus oregonensis*), 24 prickley sculpin (*Cottus asper*) and 3 longfin smelts (*Spirinchus thaleichthys*). Fishwheel 2 captured most of the Dollys (889), whitefish (86), cutthroats (64), rainbow (11), pike minnows (39) and all of the longfin smelts. This was the first year that longfin smelts had been captured in a fishwheel with the captures occurring on 30 August and 28 September (Table B-8). Fishwheel 4 captured the majority of suckers (15), sculpins (15) and lamprey (102).

Fishwheel catches of Pacific salmon smolts included 10 coho, 57 steelhead, 6 chinook, and 2 sockeye smolts (Table B-9). The fishwheels are not operated during the majority of the smolt out-migration periods for each species. Most of the smolts captured in 1999 were caught at Gitwinksihlkw.

Tagging

Totals of 10,755 sockeye, 2,502 chinook, 4,121 coho salmon, and 571 steelhead were tagged at the fishwheels in 1999 (Table 1). These totals represented 26 % of the sockeye, 72% of the chinook, 64% of the coho, and 89% of the steelhead caught in the four fishwheels. The majority of the salmon (84%) were tagged at fishwheels 1 and 2. Of the 185 Pacific lamprey captured in 1999, 46% (86) were tagged with the majority tagged at Grease Harbour (67).

Genetic Stock Identification

Totals of 563 sockeye, 677 coho and 554 steelhead adipose tissue samples were collected at the Nass fishwheels from 7 June to 30 September 1999 for genetic (DNA) analyses. An additional 274 coho and 13 steelhead adipose tissue samples were collected at the Meziadin fishway between 4 July and 15 October 1999. Salmon samples were sent to the Department of Fisheries and Oceans in Prince Rupert, and steelhead samples were sent to the Ministry of Environment, Lands and Parks, in Smithers, for analysis.

Harvesting

A total of 7,858 sockeye were selectively harvested from the fishwheels in an ESSR fishery from 23 July to 25 August 1999 (Table B-3). Fishwheels 1, 2, 3 and 4 represented 9%, 15%, 33%, and 43% of the harvested catch, respectively. Grease Harbour accounted for 76% of the total sockeye that were harvested. Consequently, most of the sockeye that were harvested were landed close to fishwheels 3 and 4 (Old Aiyansh boat docking site).

Tag Recovery

A total of 10,019 spaghetti- and operculum-tagged fish were recovered at various locations in the Nass watershed (Table 2). Most of the recoveries were at the Meziadin fishway (6,678), followed by the fishwheels (2,841), in-river fisheries (419) and at the spawning grounds (81).

Of the 419 tags returned from the in-river fisheries, 92 chinook, 298 sockeye, 28 coho and 1 steelhead tags were recovered in 1999 (Table 2). The Nisga'a fishery accounted for 90% (83), 91% (272) and 75% (21) of the chinook, sockeye and coho tag recoveries by in-river fisheries, respectively. We were unable to reliably estimate the participation rate of the fishers that returned tags (i.e., portion of their catch of tags that they turned in) so it was not possible to calculate an accurate differential rate of removal of tagged fish in the fisheries. However, for chinook salmon, we assumed that approximately a third (or 30%) of the tags recaptured in the Nisga'a and sport fisheries were returned. This proportion was based on our experience working in the area, on knowledge of the total chinook harvest by the Nisga'a fishery and a suspected lower incidence of tag returns during early-to-mid July when illegal harvests of chinook were reported to DFO (Rob Melvin, DFO-New Aiyansh, pers. comm.; Link and Nass 1999).

Recaptures of tagged fish in the fishwheels indicate that on average, chinook salmon exhibited the greatest time between tagging and subsequent recapture among the three tagged species. Operculum-tagged chinook salmon averaged (by fishwheel recaptured) 8 to 19 d at large before recapture in one of the fishwheels (n=322; Table C-1). The time at large for tagged chinook ranged from less than 1 to 50 d (n = 485) between tagging and subsequent recapture in all four fishwheels (Table C-2; Fig. 9). There were three tagged chinook salmon recovered at the Meziadin fishway that travelled between 54 and 76 d after tagging (range between 50 and 79 d; Table C-2). There were other tagged chinook observed at the Meziadin fishway; however, they were not captured (and tag numbers read) in order to avoid handling and delaying the migration of the fish.

Recaptures of tagged sockeye at the fishwheels indicated that on average, sockeye spend considerably less time at large than do tagged chinook (Table C-3; Fig. 10). On average, tagged sockeye were recovered at fishwheels 1 and 2 within 3 d of being tagged, and recaptured in fishwheels 3 and 4 within 8 d (Tables C-1 and C-3). Recoveries of fish tagged in fishwheel 1 showed a similar distribution of time at large to those fish tagged in fishwheel 2 (Fig. 10). A total of 3,961 sockeye tags were recovered at the Meziadin fishway that travelled an average of 21.1 d after tagging (range between 8 and 74 d; Table C-3).

Recaptures of tagged coho at the fishwheels indicate that on average, coho spent slightly more time at large than did tagged sockeye (Tables C-1 and C-4). Tagged coho salmon averaged (by fishwheel recaptured) 3 to 9 d at large before recapture in the fishwheels. The time at large for tagged coho salmon ranged from less than 1 to 46 d (n = 660) between tagging and subsequent recapture in all of the fishwheels (Table C-4). A total of 159 coho tags were recovered at the Meziadin fishway. The average travel time from tagging to the Meziadin fishway was 26.9 d (range between 12 and 67 d; Table C-4). There was another nine tagged coho observed at the Meziadin fishway; but they escaped recovery before the tag numbers could be read.

Counts of adult salmon at the Meziadin fishway included 180,350 sockeye, 2,994 coho, 174 chinook salmon and 15 steelhead from 4 July to 15 October 1999 (Tables D-1 and D-2). Sockeye counts at the fishway peaked on 26 July with a count of 12,780 adult sockeye with other distinct smaller peaks occurring on 21 July (11,521), 25 July (12,379) and 31 July (8,199; Fig. 11; Table D-1). The daily proportion of the sockeye count that was tagged ranged from 0% (early July) to 6.1% (29 July) and averaged 2.6% (Fig. 11; Table D-1).

Of the 6,483 tagged sockeye observed at the Meziadin fishway, 3,960 (61%) were dipnetted out and their tag numbers were recorded (Table D-1). The remainder were simply counted as they passed through the viewing chute. Further description and analysis of the tagged sockeye recoveries at the Meziadin fishway is discussed below (see **Run Reconstruction**).

The peak count of adult coho salmon at the Meziadin fishway was 282 fish on 15 September (Fig. 11; Table D-2). A total of 168 tagged coho salmon were counted at the fishway representing 5.6% of the total count. Of the 168 tagged coho observed at the fishway, 159 (95%) were dipnetted out and their tag numbers were recorded.

The peak count of adult chinook at the Meziadin fishway was 13 fish on 25 July (Table D-2). A total of 27 tagged chinook salmon were counted at the fishway representing 15.5% of the total count (Table D-2). Six (22%) of the 27 tags that were counted were dipnetted out and their tag numbers were recorded.

Small numbers of steelhead were counted at the Meziadin fishway between 4 July and 15 October (Table D-2). The first steelhead was counted on 12 September. The majority of steelhead that were counted occurred between 12 September and 23 September. No steelhead were counted at the fishway between 24 September and 10 October. A few steelhead were counted a few days before the operations ended at the Meziadin fishway on 15 October.

Escapement Estimates

In-season Escapement Estimates

From late June to late August, sockeye escapement estimates were generated daily and provided to the Department of Fisheries and Oceans in Prince Rupert at least three times per week (Table D-3). Prior to 1 July, there were insufficient tag recoveries (< 12) to derive a

reliable mark-recapture estimate, and escapement estimates were based on the average period-specific expansion factors for fishwheels 1 and 2 from 1994 to 1997.

Post-season Escapement Estimates

For sockeye and coho salmon, a range of post-season Petersen population estimates were calculated assuming that tagged fish were selectively removed from the population at rates of 0% to 30% (Table 3). The sockeye escapement estimates ranged from 209,431 (30% differential removal of tagged fish) to 299,176 (0% removal of tagged fish) at Gitwinksihlkw.

The pooled Petersen coho salmon escapement estimate ranged from 49,985 (30% removal of tagged fish) to 71,400 (0% removal; Table 3) at Grease Harbour. These estimates are based on 2,974 fish examined and 168 tags recovered from coho salmon at the Meziadin fishway. The tagging of the Nass coho run was incomplete because coho are caught in the Nass River from July to December (i.e., beyond the period when the fishwheels operated at Gitwinksihlkw in 1999 and beyond the time when Meziadin coho move through the lower river). Therefore, these are considered minimum estimates of the Nass coho salmon escapement.

A total of six surveys were conducted on two different spawning grounds (plus the Meziadin fishway counts) to obtain information to estimate the chinook salmon escapement (Table 4). A total of 356 chinook were examined and 62 tags were recovered for an estimate of 11,737 (at Grease Harbour) with 95% confidence intervals of 9,188 to 14,979. This estimate is based on an adjustment to the total number of chinook tagged (2,069 adjusted vs. 2,502 tagged). The effective number of chinook that were tagged was reduced by 432 fish to account for tag loss/mortality (5% or 125 fish) and removals by in-river fisheries (307 tags). The estimated number of tags removed by in-river fisheries was based on 92 tags returned by fishers and an assumption of 30% return rate.

The proportions of the chinook, sockeye, and coho salmon run captured in all the fishwheels based on the fishwheel catches and mark-recapture derived population estimates above Gitwinksihlkw were 28.0%, 18.0%, and 9.9%, respectively (Table 5). In 1999, fishwheel 4 captured the greatest proportion of the run for all species combined (5.8%), followed by fishwheels 3 (5.3%), 2 (5.1%), and 1 (2.9%).

Run Reconstruction

Analysis of the 3,960 spaghetti tags recovered from sockeye at the Meziadin fishway revealed a positively skewed distribution of travel times with a mode of 19 d, a median of 20 d, and a mean of 21.1 d (Fig. 12a; Tables 6 and C-3). The tag recovery data indicate an average speed from the fishwheels to the fishway of 7.1 km per day with a maximum speed of 18.8 km per day (i.e., fish with a 8-d travel time). The mean travel times for tagged sockeye salmon to travel from the fishwheels to the Meziadin fishway (by tagging period) increased slightly in late July and early August, presumably caused by differences in Nass River discharges (Fig. 12b and Fig. A-1). However, as observed in past years, travel times revealed a general pattern of decreasing travel times (increasing migration speed) through the season. Coho salmon exhibited a similar migration pattern as sockeye with decreasing travel time by tagging period; but with

overall slower mean travel times from the fishwheels to the fishway (mean=26.9 d [range 12 d to 67 d]; Fig. 13 and Table C-4). The tag recovery data for coho indicate an average speed from the fishwheels to the fishway of 5.6 km per day with a maximum speed of 12.5 km per day.

The reconstructed sockeye salmon abundance at Gitwinksihlkw showed that both fishwheel 1 (5.3%) and 2 (6.0%) captured a high proportion of the sockeye run at peak abundance in mid-July (Fig. 14). However, the estimated daily efficiency of the two Gitwinksihlkw fishwheels varied throughout the season with higher portions of the run being caught by fishwheel 2 from mid-July to late August. Unlike past years, the fishwheel efficiency did appear to be correlated with the abundance (Figs. 14 and 15), suggesting density-dependent catchability (fishwheel efficiency). An increase in catchability is observed at both fishwheel 1 and 2 between late June and mid-July when water levels remained relatively constant (Fig. 15).

High water in mid-June interrupted the sockeye run at Gitwinksihlkw (Fig. 15). Moderate water levels from late June to mid-August produced the highest fishwheel efficiencies, while low water levels in September resulted in lower fishwheel efficiencies (Fig. 15). Although water levels were dropping between late July and September, fishwheel 2 continued to capture sockeye at high proportions whereas the catch efficiency at fishwheel 1 steadily declined. Caution should be used in interpreting the catch efficiency data from late August and September because the estimated efficiencies observed are based on a relatively small number of fish recovered.

Age and Length Sampling

Most of the chinook salmon that returned to the Nass River in 1999 were 5-year-old fish (39.2%); 38.5% left freshwater during their second year of life (5_2) based on chinook sampled at the fishwheels and weighted using the CPE in the Gitwinksihlkw fishwheels (Table 7). The other significant age classes were 4_2 (29.5%), 6_2 (15.4%) and 3_2 (14.5%). The chinook salmon age and length data are presented in Table E-1 and summarized in Tables 7 and 8. Ages could not be determined for 19% of the chinook salmon sampled (Table E-1).

Sockeye salmon that returned to the Nass River in 1999 were predominantly 5-year-old fish (59%; brood year 1994, Table 7). Weighting by weekly re-constructed abundance, the dominant age classes were 5_3 (43.6%), 4_2 (31.4%) and 6_3 (5.7%; Table 7). The sockeye salmon age and length data are presented in Table E-2 and summarized in Tables E-3, E-4, 7 and 8. Ages could not be determined for 7% of the sockeye salmon sampled (Table E-2). The 5-year-old fish dominated the run throughout the season but were in greater proportion after week 29, with the exception of week 36, when the proportion of 4-year-old fish peaked in abundance (Fig. 16). In week 36, an unusual spike in abundance for 4-year-old fish and decrease in 5-year-old fish was observed. This may have been an affect of no 5_2 fish being present after week 35. Age class 5_2 fish dominated only from weeks 24 to 26 and 5_3 dominated from weeks 27 to 40.

Coho salmon that returned to the Nass River in 1999 were predominantly 3-year-old fish (60.7%; Table 7). Weighting by CPE in the Gitwinksihlkw fishwheels, the dominant age classes were 3_2 (60.7%), 4_3 (39.1%) and 5_4 (0.1%). The coho salmon age and length data are presented

in Table E-5 and summarized in Tables 7 and 8. Ages could not be determined for 32% of the coho salmon sampled (Table E-5).

Mean length data by age for sockeye, chinook and coho salmon are summarized in Table 8. The most frequent mean length for sockeye, chinook and coho salmon was 59.9 cm (5_3 fish, n=868), 86.6 cm (5_2 fish, n=198), and 59.3 cm (3_2 fish, n=467), respectively.

DISCUSSION

Operational Evaluation

Unlike the low water levels observed in 1998 (Alexander and Link 2001), the water levels in 1999 were about 0.5 m higher than the mean levels from 1992 to 1998 and influenced fishwheel speeds and efficiencies (Figs. 2 and A-1). Fishwheel 1 provided the most consistent fishing effort throughout the entire season but caught less fish than fishwheel 2. The higher water levels in 1999 contributed to fishwheel 2 fishing well throughout the season. In most years, catch efficiencies at fishwheel 2 are poor in late August and September when water levels are low. In 1999, catch efficiencies at fishwheel 2 dropped in late August and September but stayed at above average levels (2-4%; Fig. 15). Fishwheels 3 and 4 fished very well throughout the season.

As a consequence of the higher water levels in 1999, catch rates were much higher during the chinook and sockeye runs at all four fishwheels when compared to the 1994-1999 averages (Table 9). The combined catch rates for chinook (28%) and sockeye (18%) were the highest achieved since the fishwheel program began in 1992 (Table 9). Catch rates at fishwheel 2 were almost twice as high as average levels for chinook, sockeye and coho, whereas catch rates for fishwheel 1 were much higher for sockeye but slightly below average for chinook and coho. Catch rates at fishwheels 3 and 4 were well above their averages for the chinook and sockeye runs; but were only average for the coho run (Table 9). The similarity in catch rates in late August and September compared to the mean rates are probably explained by typical water levels observed during the coho migration (Fig. A-1).

Escapement Estimates

The in-season mark-recapture escapement estimation method for sockeye did well (within 3% of the final reconstructed run) up until mid-to-late July where it diverged to 10% of the final reconstructed run. Since higher than average water periods that occurred between late July and September were not typical of prior years, the period-specific catchability estimates were poor estimates from late July to the end of the season; but did well in June before sufficient tag recoveries (>12) from the Grease Harbour fishwheels were obtained for generating the mark-recapture estimate (Table D-3 and Fig. A-1). The final period-specific catchability estimate was 39% higher than the final reconstructed run at Gitwinksihlkw. The higher catch (and tag) rates of the Gitwinksihlkw fishwheels, in particular fishwheel 2, resulted in a slight over-estimate (10%) of the abundance at Gitwinksihlkw when using the tag recovery rate at the Grease Harbour fishwheels (Table D-3). The in-season mark-recapture estimates were reliable as other

years, providing conservative estimates during most of the season, especially during commercial and in-river fisheries in June and July.

The validity of the assumptions associated with the Petersen estimation procedures that generate the mark-recapture estimates from the fishwheel program has been extensively discussed in other reports (Link et al. 1996; Link and English 1996, 1997; Link 1999; Link and Nass 1999; Link and Alexander 2001). These authors concluded that some differential loss of tagged fish likely occurs each year, primarily due to handling effects and selective removal from the Nisga'a fishery. The bias from this loss would result in an overestimate of the escapement if one assumed equal survival between tagged and non-tagged fish.

A differential removal rate of 20% for sockeye salmon was used to derive a population estimate in 1999 as in other years (Annual Reports). The tag removal rate is based on the assumption that approximately 5% of the tags are selectively removed in the food fisheries (Link and English 1997) and 15% are mortalities (Link and Gurak 1997). If we assume a 50% participation rate of tag returns in the in-river fisheries, the selective removal rate of tags in food fisheries in 1999 was calculated at 5.1% (i.e., 272 tags returned, expanded to 544 tags selectively removed). The 15% mortality estimate is probably an over-estimate of the number of tags that died. This rate is based on the fate of 17 radio-tagged sockeye (of 118 that were tagged in 1995) that were considered to have died below the tagging site (11), died above the tagging site (2) and left the system (4; Link and Gurak 1997). Link and Gurak (1997) chose the 15% mortality rate to be conservative; but stated that mortality from spaghetti tagging is probably lower considering that two of the 17 radio-tagged mortalities that died above the tagging site were probably fishing related, that the four tagged fish that left the system were probably strays, and that the radio tagging method is more stressful than spaghetti tagging. It is quite possible that the mortality rate is closer to 10% (11 of 118 radio-tagged sockeye). However, since we cannot calculate a mortality estimate or reliably determine the tag return rate in 1999, we concluded that the 20% differential removal rate appears to be reasonable when compared to other years.

For chinook salmon, the differential removal rate of 17.3% was estimated in 1999 by assuming a 5% tag mortality rate (Koski et al. 1996a,b) and calculating a 12.3% tag removal rate in the in-river fisheries from the expansion of the chinook tag returns (92) by a 30% participation rate. The 1999 differential removal rate for chinook appears reasonable when compared to other years. The differential removal rate for Nass chinook has been estimated between 10% (1997; Link and Nass 1999) and 20.5% (1998; Alexander and Link 2001). Extensive sampling of the Nisga'a fishery in 1994 resulted in the best estimate (12.2%) of differential removal when using tag returns (Link and English 1997).

A differential removal rate of 10% for coho salmon was used to derive a population estimate in 1999 as in other years (Annual Reports). The tag removal rate is based on the assumption that approximately 2% of the tags are selectively removed in the food fisheries and 8% are mortalities (Link and Gurak 1997). Based on a 50% expansion rate of coho tags returned in the in-river fisheries, we calculated a 1% selective removal rate of tags in food fisheries (i.e., 21 tag returns expanded to 42 tags selectively removed). Since the participation rate of returning tags cannot be accurately determined, we concluded that the 10% differential rate would be reasonable for generating an escapement estimate. An additional 66 coho tags were censored

from the total tags that were released since their application date was after 17 September and they did not have enough time to travel to Meziadin fishway before the operations ended on 15 October (mean travel time to Meziadin was 27 d; Table 3).

A re-sampling of the food fishery for tag rates (similar as conducted in 1994) and a well publicized tag-return-program continue to be recommended in the future for accurately determining the number of tags to censor from the mark-recapture experiment.

Summary of Final Escapement Estimates

The estimated chinook salmon harvest in the Nisga'a in-river fishery in 1999 was 8,790 (Barner 2000) and the estimated sport fishery harvest was 82 (Tseax only; Baxter 2000). Using estimates of the Nisga'a harvest above Gitwinksihlkw (1,608), Gitanyow harvest (193), and the sport fishery harvests (82), the net spawning escapement for chinook in 1999 was estimated to be 11,544 (Table 10). The estimate of the total escapement of chinook salmon to the Nass River in 1999 (after ocean fishery harvests) was 20,609 (Table 10).

Using the same method as above, the net sockeye escapement in 1999 was estimated to be 210,957; the escapement at Gitwinksihlkw was 239,346 (Table 10). A minimum estimate of net spawning escapement for Nass River coho was 64,059 (Table 10). The estimated total escapement to the Nass River for sockeye (256,022) and coho (65,384) was derived by adding in-river harvests below the fishwheels to the mark-recapture population estimates above the fishwheels (Table 10).

Based on the Meziadin fishway count of sockeye salmon and the system-wide escapement estimate, the Meziadin stock comprised 85.5% of the Nass sockeye escapement in 1999. The tag-based estimate of the proportion of the Nass escapement bound for the Meziadin fishway was 3% larger than the estimate derived from the microsatellite DNA estimate (82.9%; Chris Wood, Department of Fisheries and Oceans, Nanaimo, pers. comm.), and 13% smaller than the estimate derived from the traditional scale-based method (98.3%; Todd and Dickson 1970; L. Jantz, Department of Fisheries and Oceans, Prince Rupert, pers. comm.; Table 11). The results of the tag-based and genetic estimates are very similar but vary greatly with the scale-based method. More research is required to determine the best method for accurately estimating stock composition for Nass sockeye salmon.

Fishwheels as a Test Fishery

The inter-annual variability of the efficiency or catchability (q) of the Nass River fishwheels is still more reliable than the historical variability in the catchability of the Monkley Dump test fishery (Annual Reports). Unlike other years, the fishwheel catchability at Gitwinksihlkw in 1999 did appear to be related to abundance rather than influenced by the absolute water level of the Nass River (Figs. 14 and 15). The influence of water level on the efficiency of the fishwheels is not fully understood but may be quantified in the future once sufficient catch and water level data are obtained. If a reliable relationship is determined between catch efficiency and water level data, improvements to the in-season estimates of q may be possible. Until that relationship is determined and evaluated, it is essential that the tagging

and mark-recapture program remain an integral component of the fishwheel program for assessing the in-season variation in the catchability of the fishwheels.

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TABLES

Table 1. Numbers of each species of salmon caught and tagged at four fishwheels on the Nass River, 1999.

	Fishwheel 1			Fishwheel 2			Fishwheel 3			Fishwheel 4			All fishwheels combined		
	Catch			Catch			Catch			Catch			Catch		
Species	Adults	Jacks	Tagged	Adults	Jacks	Tagged	Adults	Jacks	Tagged	Adults	Jacks	Tagged	Adults	Jacks	Tagged
Chinook	382	59	341	975	85	864	1,042	133	722	1,077	89	575	3,476	366	2,502
Sockeye	7,011	529	3,753	13,308	868	7,002	10,438	644	0	10,788	1,217	0	41,545	3,258	10,755
Coho	1,802	128	1,320	1,881	129	1,434	851	118	434	1,859	241	933	6,393	616	4,121
Steelhead	56	na	49	276	na	257	110	na	93	199	na	172	641	na	571
Pink	8,540	na	na	9,808	na	na	1,439	na	na	2,232	na	na	22,019	na	na
Chum	34	na	na	49	na	na	28	na	na	16	na	na	127	na	na
Total	17,825	716	5,463	26,297	1,082	9,557	13,908	895	1,249	16,171	1,547	1,680	74,201	4,240	17,949

na - not applicable

Table 2. A summary of the number of tag recoveries by location for the tags applied at the Nass fishwheels, 1999.

Species	Number of fish tagged	Location					Percent recovered
		Meziadin fishway[a]	Spawning grounds[b]	Fishwheels[c]	Fisheries[d]	Total	
Chinook	2,502	27	40	489	92	648	25.9
Sockeye	10,755	6,483	0	1,642	298	8,423	78.3
Coho	4,121	168	12	673	28	881	21.4
Steelhead	571	0	29	37	1	67	11.7
Totals	17,949	6,678	81	2,841	419	10,019	55.8

[a] Includes all tagged fish observed but not necessarily recovered.

[b] Chinook tags were recovered at Damdochax (4), Kwinageese (31), Meziadin (1), Cranberry (1), Tchitin (2) and Dogfish Bay (1). Coho tags were recovered at Damdochax (1), Meziadin (1), Cranberry (3), Tchitin (2) and Zolzap (5) Steelhead tags were recovered at Damdochax/Nass (6), Kwinageese (2), Bell-Irving (8), Meziadin/Nass (2), and Cranberry (11).

[c] These fish were released back to the river so some of them may have been subsequently counted or recovered.

[d] Includes recoveries in commercial (2 coho), sport (6 chinook, 2 sockeye, and 4 coho) and in-river fisheries (86 chinook, 296 sockeye, 22 coho and 1 steelhead).

Table 3. Population estimates derived from tagging of adult sockeye and coho salmon at the Nass River fishwheels and recovery of tags at the Meziadin fishway, 1999. The best estimates are in italics.

	Sockeye	Coho
Number tagged	10,755	4,055 *
Number fish examined for tags	180,350	2,974
Number of tagged fish observed	6,483	168
Pooled Petersen Population estimates (at Gitwinksilkw (sockeye) and Grease Harbour (coho))		
Assumed rate of differential tag removal		
0%	299,176	71,400
10%	269,261	*64,262*
20%	*239,346*	57,124
30%	209,431	49,985
Bounds for Petersen estimate - No differential tag loss		
Lower 95 % CL	291,982	61,439
Upper 95 % CL	306,547	82,966
Bounds for Petersen estimate - 10% differential tag removal		
Lower 95 % CL	262,787	*55,297*
Upper 95 % CL	275,895	*74,672*
Bounds for Petersen estimate - 20% differential tag removal		
Lower 95 % CL	*233,591*	47,864
Upper 95 % CL	*245,243*	64,635

* Excludes 66 coho tags applied after 17 September that would not be available for recovery (based on a mean travel time of 27 d from tagging to fishway and recoveries stopping on 15 October 1999).

Table 4. Summary of escapement survey data and estimated escapement for chinook salmon upstream of Grease Harbour, 1999.

System	No. of surveys	No. of fish examined		Total fish examined	No. of tags	Mark rate (examined/tags)
		Live	Carcasses			
Damdochax	3		24	24	4	6.0
Kwinageese	3		158	158	31	5.1
Meziadin	fishway count	174		174	27	6.4
Totals	6	174	182	356	62	5.7

Total tags applied:	2,502
[a]Corrected tag total:	2,070
Total fish examined:	356
Total tags recovered:	62
Adjusted Petersen escapement estimate past the Grease Harbour fishwheels:	11,737
Lower 95% C.I.:	9,188
Upper 95% C.I.:	14,979

[a] Adjusted for tag loss, selective removal in food fisheries and differential mortality of tagged fish [432 tags censored to account for tag loss/mortality (5% or 125 fish) and removals by in-river fisheries (307 fish)].

Table 5. The estimated percentages of adult chinook, sockeye, and coho captured with four fishwheels on the Nass River, 1999. The percentages were derived using the Petersen escapement estimates and 95% confidence intervals (Tables 3 & 4). The estimated abundance past fishwheels 3 and 4 was determined by subtracting the estimated Nisga'a fishery harvest above Gitwinksihlkw from the estimated escapement above Gitwinksihlkw. The escapement above Gitwinksihlkw was used for calculating the "all fishwheels" percentages.

	Fishwheel 1			Fishwheel 2			Fishwheel 3			Fishwheel 4			All fishwheels		
		Range			Range			Range			Range			Range	
Species	Percent	Lower	Upper	Percent	Lower	Upper	Percent	Lower	Upper	Percent	Lower	Upper	Percent	Lower	Upper
Sockeye	2.9	3.0	2.9	5.6	5.7	5.4	4.7	4.8	4.6	4.9	5.0	4.7	18.0	18.5	17.6
Chinook	2.8	4.2	2.6	7.3	10.6	6.5	8.8	13.7	7.8	9.1	14.2	8.1	28.0	42.7	24.9
Coho	2.8	3.3	2.4	2.9	3.4	2.5	1.3	1.5	1.1	2.9	3.4	2.5	9.9	11.6	8.6
Total, all spp	2.9	3.1	2.7	5.1	5.4	4.8	5.3	5.5	5.1	5.8	6.1	5.6	19.1	20.1	18.3

Table 6. Means, standard errors and 95% confidence intervals for sockeye travel times from the fishwheels to the Meziadin fishway for 3-day release periods, 1999.

Release periods	Number of recoveries	Mean travel time (d)	Standard error	95 % Confidence Interval	
				Lower	Upper
Period ending date					
10-Jun	3	41.7	2.03	37.6	45.7
13-Jun	0	0.0	0.00	0.0	0.0
16-Jun	0	0.0	0.00	0.0	0.0
19-Jun	0	0.0	0.00	0.0	0.0
22-Jun	8	27.6	0.60	26.4	28.8
25-Jun	144	25.8	0.33	25.2	26.5
28-Jun	151	24.8	0.37	24.0	25.5
1-Jul	136	23.1	0.34	22.4	23.8
4-Jul	227	23.1	0.30	22.5	23.7
7-Jul	271	21.6	0.30	21.0	22.2
10-Jul	507	20.8	0.22	20.3	21.2
13-Jul	265	20.2	0.32	19.6	20.8
16-Jul	298	19.7	0.34	19.0	20.3
19-Jul	225	20.0	0.47	19.0	20.9
22-Jul	250	17.9	0.35	17.2	18.6
25-Jul	225	20.2	0.41	19.3	21.0
28-Jul	72	23.3	1.02	21.3	25.4
31-Jul	91	22.9	0.71	21.4	24.3
3-Aug	105	23.8	0.67	22.4	25.1
6-Aug	231	21.0	0.39	20.2	21.8
9-Aug	206	21.1	0.41	20.3	21.9
12-Aug	110	21.0	0.53	19.9	22.0
15-Aug	112	20.9	0.58	19.8	22.1
18-Aug	80	20.1	0.47	19.1	21.0
21-Aug	56	21.4	0.65	20.1	22.7
24-Aug	46	19.0	0.71	17.6	20.4
27-Aug	61	17.6	0.38	16.9	18.4
30-Aug	38	16.0	0.76	14.5	17.5
2-Sep	12	15.7	2.06	11.6	19.8
5-Sep	5	18.4	4.41	9.6	27.2
8-Sep	14	16.2	1.85	12.5	19.9
11-Sep	9	15.9	2.18	11.5	20.2
14-Sep	2	19.5	2.50	14.5	24.5
17-Sep	0	0.0	0.00	0.0	0.0
20-Sep	0	0.0	0.00	0.0	0.0
23-Sep	0	0.0	0.00	0.0	0.0
26-Sep	0	0.0	0.00	0.0	0.0
29-Sep	0	0.0	0.00	0.0	0.0
All periods	3,960	21.1	0.09	20.9	21.3

Table 7. Summary of age composition of chinook, sockeye, and coho salmon sampled at the Nass River fishwheels, 1999. Chinook and coho portions are weighted by weekly Gitwinksihlkw fishwheel CPE; sockeye composition weighted by the weekly escapement estimates generated by the mark-recapture data. A dash denotes no fish were sampled from that age class. The data underestimate the proportion of chinook under 50 cm nose-fork (32s and 43s) because these fish were not routinely sampled.

	Estimated percent of total run												
	Brood year / Age class												
	1996		1995			1994				1993			1992
Species	31	32	41	42	43	51	52	53	54	62	63	64	72
Chinook	-	14.5	-	29.5	0.5	0.5	38.5	0.1	-	15.4	0.5	-	0.3
Sockeye	1.0	0.1	3.0	31.4	0.1	-	15.2	43.6	-	0.04	5.7	-	-
Coho	-	60.7	-	-	39.1	-	-	-	0.1	-	-	-	-

Table 8. Mean nose-fork length (cm) of salmon (by age) sampled at the Nass River fishwheels, 1999.

Species	Age class	Number of fish	Mean length (cm)	Standard deviation (cm)
Sockeye	31	16	53.2	6.4
	32	1	57.0	-
	41	47	60.2	3.7
	42	634	58.2	4.3
	43	3	58.7	4.7
	52	278	64.6	3.4
	53	868	59.9	3.7
	62	1	70.0	-
	63	111	66.0	3.9
	Total	1959	60.3	4.6
Chinook	32	81	44.9	7.7
	42	142	69.8	7.4
	43	3	51.7	3.1
	51	3	94.0	11.0
	52	198	86.6	5.9
	53	1	75.0	-
	62	81	94.3	7.3
	63	2	90.0	2.8
	72	2	102.5	0.7
	Total	513	76.5	17.8
Coho	32	467	59.3	7.9
	43	306	59.9	7.9
	54	1	70.0	-
	Total	774	59.6	7.9

Table 9. The estimated annual catch rates (% of the run captured) of the Nass River fishwheel for chinook, sockeye and coho salmon, 1992-99.

	Chinook catch rates (%)					Sockeye catch rates (%)					Coho catch rates (%)				
Year	Fw1	Fw2	Fw3	Fw4	Total	Fw1	Fw2	Fw3	Fw4	Total	Fw1	Fw2	Fw3	Fw4	Total
1992 [a]	1.3	0.8			2.1	1.0	0.3			1.3	0.8	0.2			0.9
1993 [b]	1.8	0.7			2.5	1.1	0.6			1.7	0.9	0.8			1.7
1994 [c]	3.0	5.4	2.9		11.3	1.6	3.9	2.2		7.7	1.6	1.8	0.9		4.3
1995 [d]	3.2	4.8	1.4	0.4	9.8	1.8	2.8	1.8	1.2	7.6	3.4	0.5	1.0	2.2	7.2
1996 [e]	2.4	3.8	1.6	1.6	9.4	2.7	3.9	2.1	1.4	10.1	3.0	1.6	1.6	2.0	8.2
1997 [f,g]	5.1	5.9	3.5	4.1	18.6	1.8	3.3	2.9	2.7	10.7	3.8	2.5	1.6	2.3	10.2
1998 [h]	1.4	3.4	5.3	2.5	12.6	0.6	1.3	2.6	1.8	6.2	3.1	0.9	1.6	3.3	8.9
1999	2.8	7.3	8.8	9.1	28.0	2.9	5.6	4.7	4.9	18.0	2.8	2.9	1.3	2.9	9.9
92-99 Mean	2.6	4.0	3.9	3.5		1.7	2.7	2.7	2.4		2.4	1.4	1.4	2.6	
94-99 Mean	3.0	5.1	3.9	3.5		1.9	3.5	2.7	2.4		3.0	1.7	1.4	2.6	
Per fishwheel avg., 94-99					**3.5**					**2.3**					**1.9**

[a] Link, M. R., K. K. English, and R. C. Bocking. 1996. The 1992 Fishwheel Project on the Nass River and an Evaluation of Fishwheels as an In-season Management and Stock Assessment Tool for the Nass River. Can. Manuscr. Rep. Fish. Aquat. Sci. 2372: x + 82 p.

[b] Link, M. R., and K. K. English. 1996. The 1993 Fishwheel Project on the Nass River and an Evaluation of Fishwheels as an In-season Management and Stock Assessment Tool for the Nass River. Can. Tech. Rep. Fish. Aquat. Sci. 2130: xi + 103 p.

[c] Link, M. R., and K. K. English. 1997. The 1994 Fishwheel Project on the Nass River, BC. Can. Manuscr. Rep. Fish. Aquat. Sci. 2421: xi + 93 p.

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[e] Link, M. R. 1999. The 1996 fishwheel project on the Nass River, BC. Can. Manuscr. Rep. Fish. Aquat. Sci. 2476: xi + 92 p.

[f] Link, M. R., and B. L. Nass. 1999. Estimated abundance of chinook salmon returning to the Nass River, BC, 1997. Can. Manuscr. Rep. Fish. Aquat. Sci. 2475: x + 64 p.

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[h] Alexander, R. F. and M.R. Link. 2001. The 1998 fishwheel project on the Nass River, BC. Can. Manuscr. Rep. Fish. Aquat. Sci. 2556: xi + 111 p.

Table 10. Summary of the estimates of catch and escapement to the Nass River for chinook, sockeye and coho salmon, 1999.

	Escapement			Catch [d]				
				Nisga'a harvest and ESSR			Gitanyow [e]	Sport fishery
Species	Total escapement to the Nass River (TE)	Escapement to Gitwinksihlkw (GWE)	Net spawning escapement (NSE)	Below Git. (BGW)	Above Git. (AGW)	Total	harvest (GFH)	harvest (SFH)
[a]Chinook	20,609	13,427	11,544	7,182	1,608	8,790	193	82
[b]Sockeye	256,022	239,346	210,957	16,676	17,162	33,838	11,227	-
[c]Coho	65,384	64,332	64,059	1,052	70	1,122	203	-

[a] TE=GWE+BGW
GWE=NSE+AGW+SFH
NSE=mark-recapture estimate at Grease Harbour (Table 4) - GFH

[b] TE=GWE+BGW
GWE=mark-recapture estimate from Meziadin recoveries (Table 3)
NSE=GWE-AGW-GFH

[c] TE (partial or incomplete estimate)=GWE+BGW
GWE (partial or incomplete estimate)=NSE+AGW+GFH
NSE (partial or incomplete estimate)=mark-recapture estimate at Grease Harbour (Table 3) - GFH

[d] Catch includes all harvests from the Nisga'a (Barner 2000), Gitanyow (Les Jantz, DFO-Prince Rupert, pers. comm.), and sport (Baxter 2000) fisheries. Nisga'a and Gitanyow sockeye catches also include 7858 and 6000 fish, respectively, that were harvested as part of an ESSR fishery. Sport fishery harvest estimates in 1999 were made for chinook at the Tseax River (82).

[e] Gitanyow are a first nation living in the Skeena watershed.

- Estimates negligible, unavailable or incomplete due to limited sport fish monitoring activity in the Nass watershed.

Table 11. Comparison of stock composition estimates for Nass River sockeye salmon (percent Meziadin) from scale, genetic and tagging methods, 1986-99.

	Percent Meziadin				Differences		
		Genetic					
Year	[a]Scale	GSI	DNA	[b]Tag	Scale-Genetic	Scale-Tag	Genetic-Tag
1986	61.6	63.5			-1.9		
1987	78.2	57.1			21.0		
1988	85.5	58.5			27.0		
1989	44.5	41.2			3.3		
1990	77.8	71.5			6.3		
1991	92.6	79.9			12.8		
1992	93.3	86.3		81.0	7.0	12.3	5.3
1993	86.5	76.6		73.1	9.9	13.4	3.5
1994	91.2	na		59.0	na	32.2	na
[c]1995	86.2	83.0		76.4	3.2	9.8	6.6
[d]1996	60.9	na	73.0	78.3	-12.1	-17.4	-5.3
1997	65.2	na		59.5	na	5.7	na
[e]1998	88.6	na		61.5	na	27.0	na
[f]1999	98.3	na	82.9	85.5	15.4	12.8	-2.6
Averages:							
Years 92-99	83.8	82.0	78.0	71.8	4.7	12.0	1.5
All years	79.3	68.6	78.0	71.8	8.4	12.0	1.5

[a] Proportion of Meziadin adult sockeye count (1999: 180,350) to scale net escapement estimate (1999: 183,543; Les Jantz, DFO Prince Rupert, pers. com.).

[b] Proportion of Meziadin adult sockeye count (1999: 180,350) to fishwheel net escapement estimate at Gitwinksilkhw (Table 10).

[c] GSI method in 1995 includes only 5 late weeks of the run (50% of escapement), the estimate is likely biased high from the season-total percent Meziadin because first sampling week (adjacent to the bulk of the escapement) was only 68% Meziadin whereas late run weeks were composed of 95-100% Meziadin. This pattern suggests that the early-run component was less than the late-run average of 83%.

[d] The microsatellite DNA estimate is the proportion of Meziadin sockeye from the 1996 Nass test fishery (Beecham and Wood 1999).

[e] The 1998 Meziadin scale estimate is based on circuli counts only.

[f] The 1999 scale estimate does not include Damdochax or Fred-Wright sockeye rivers. The microsatellite DNA estimate is the proportion of Meziadin sockeye from the 1999 Nass fishwheel DNA samples (n=279; Chris Wood, DFO - Nanaimo, pers. com.).

FIGURES

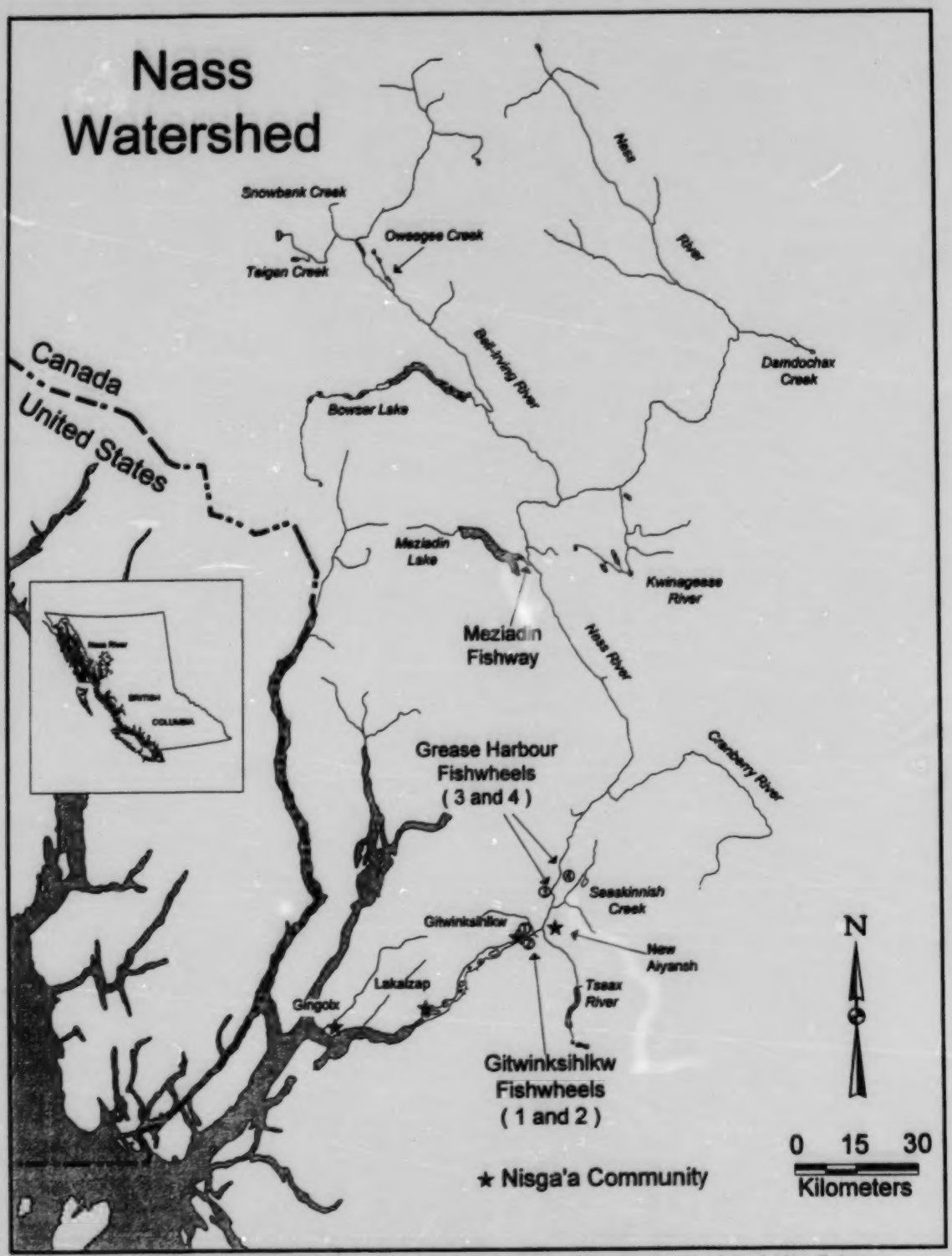

Figure 1. The Nass watershed showing locations of the fishwheels, the Meziadin fishway and chinook spawning areas that were surveyed.

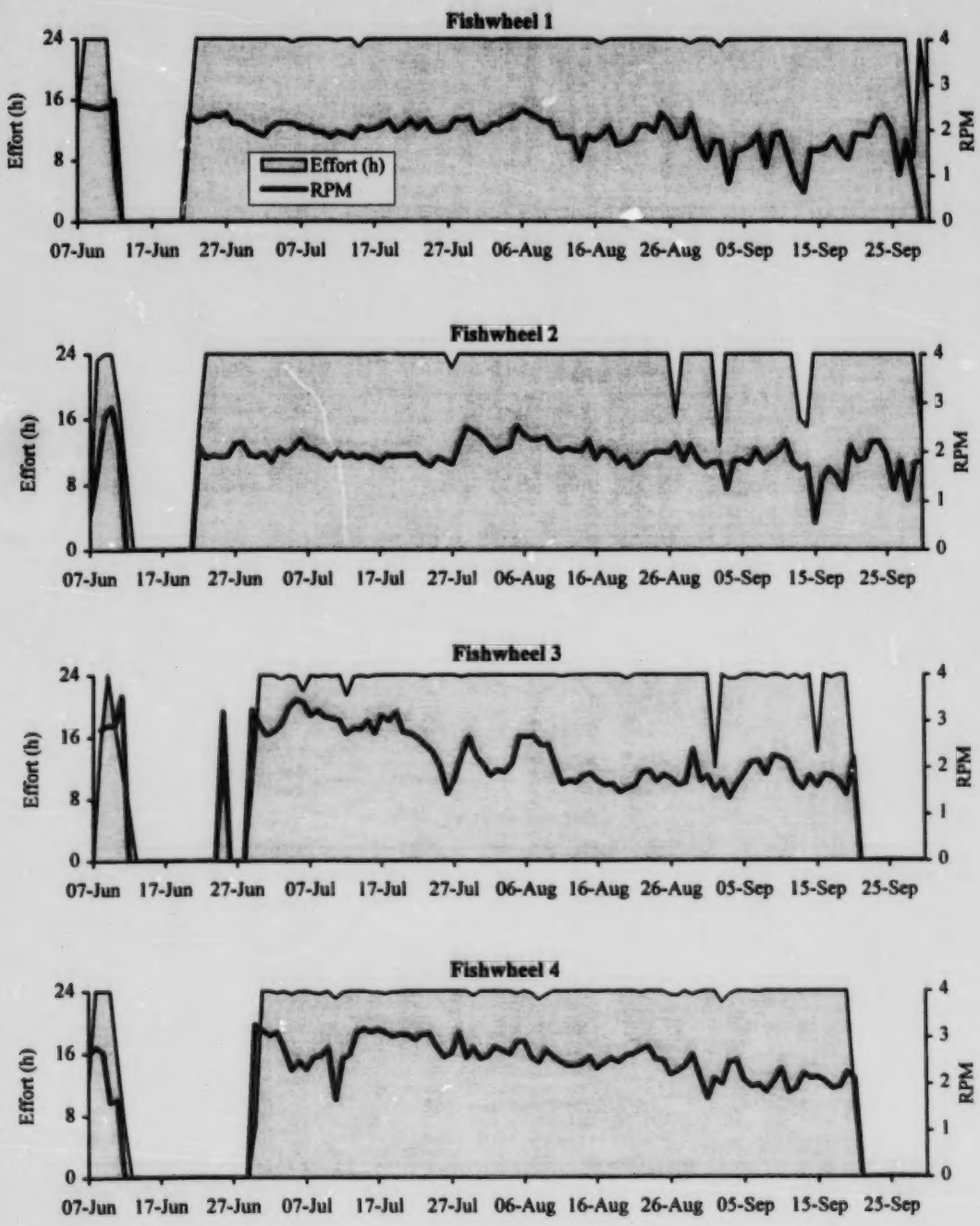

Figure 2. Fishwheel effort (hours) and speed (RPM) for four fishwheels on the Nass River, 1999.

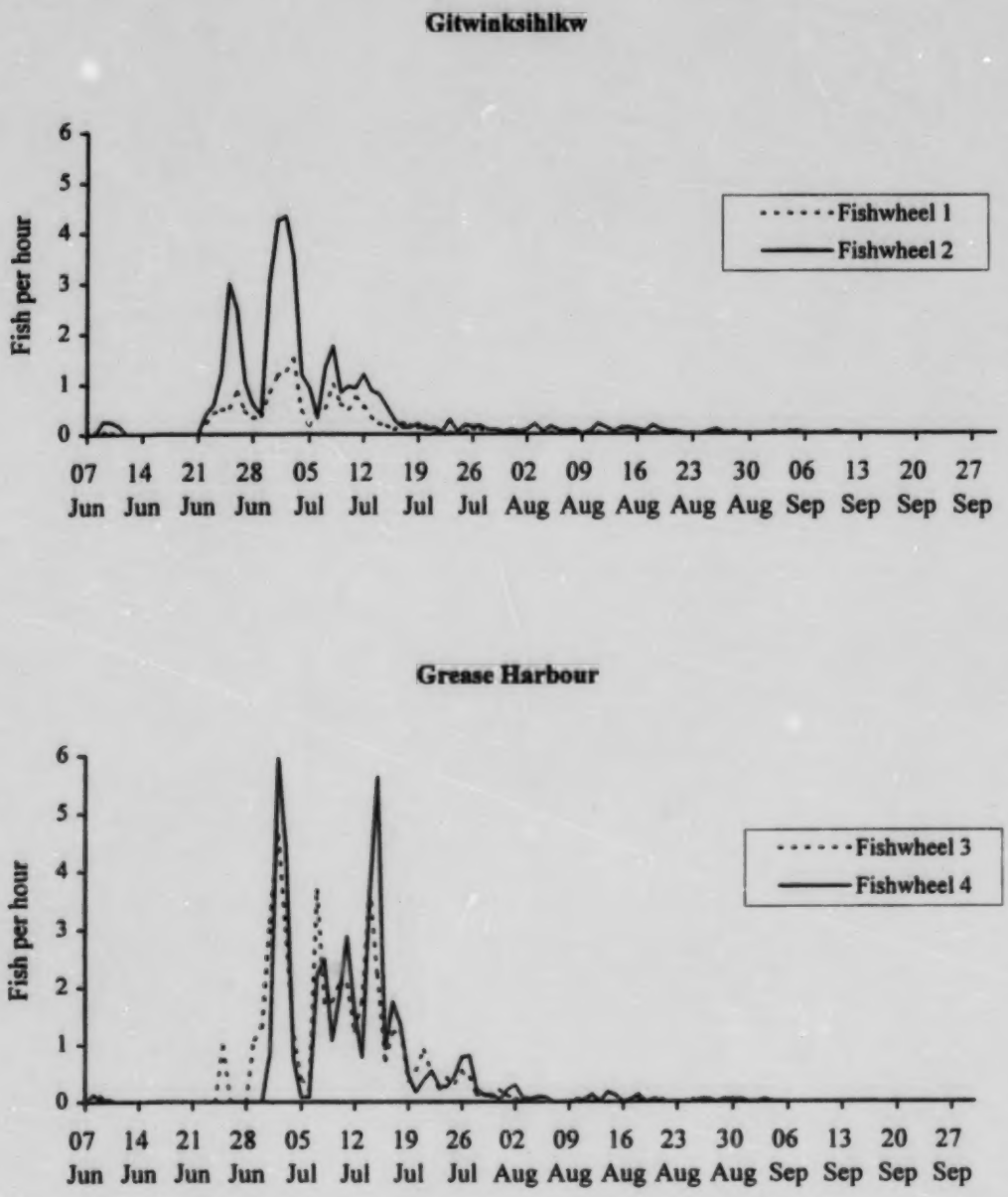

Figure 3. Fishwheel CPE (catch per wheel hour) for adult chinook captured with four fishwheels on the Nass River, 1999.

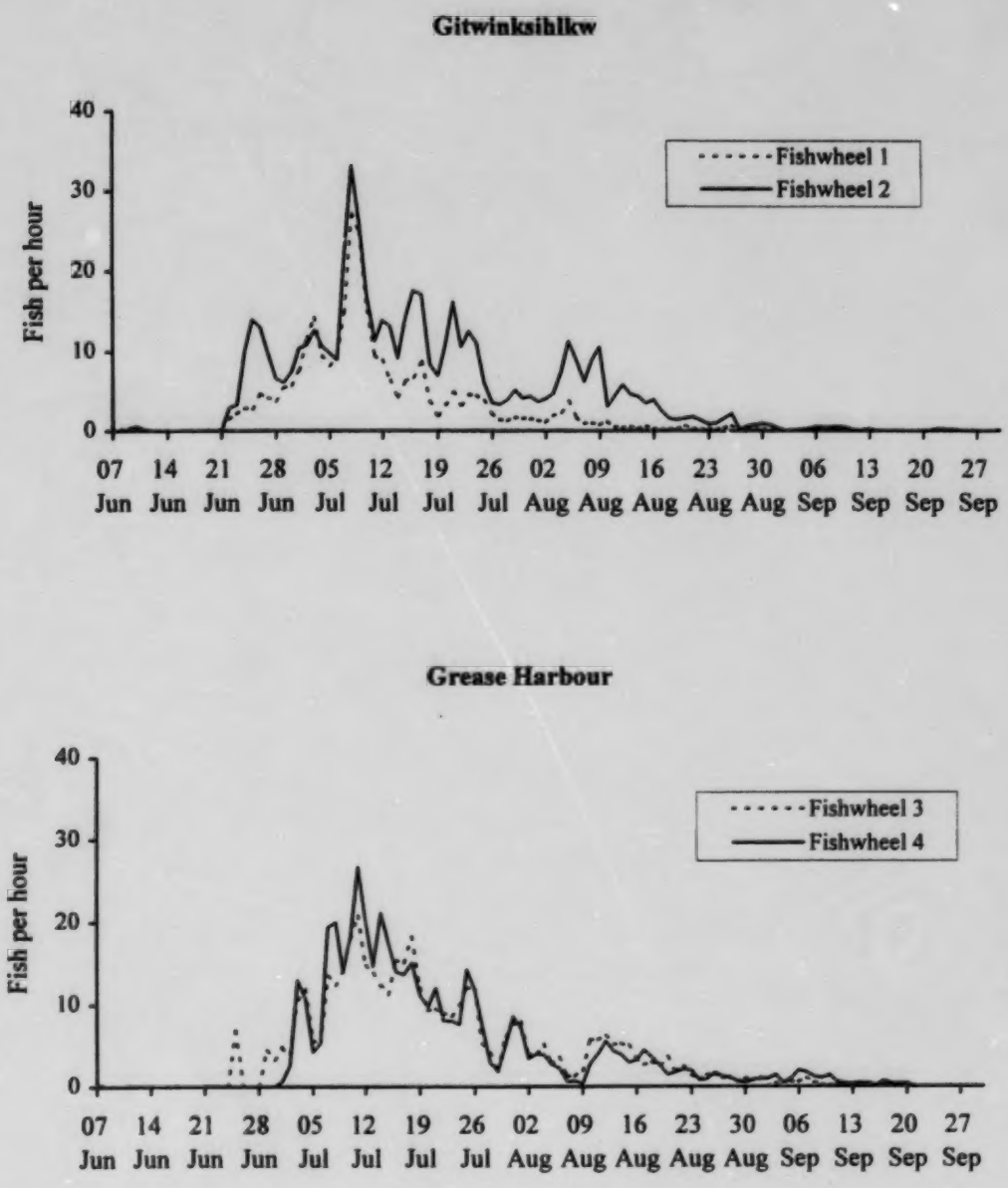

Figure 4. Fishwheel CPE (catch per wheel hour) for adult sockeye salmon captured with four fishwheels on the Nass River, 1999.

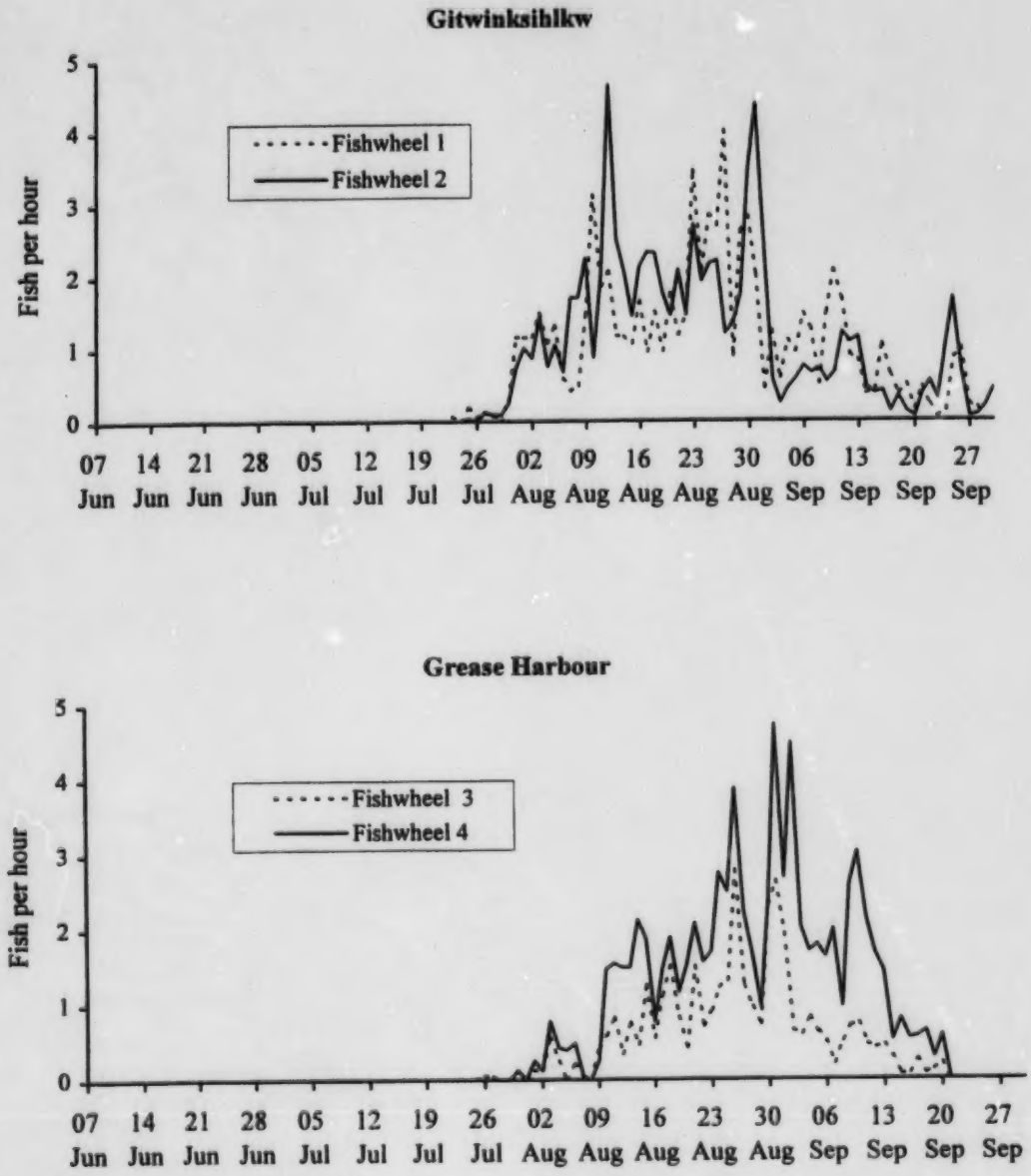

Figure 5. Fishwheel CPE (catch per wheel hour) for adult coho salmon captured with four fishwheels on the Nass River, 1999.

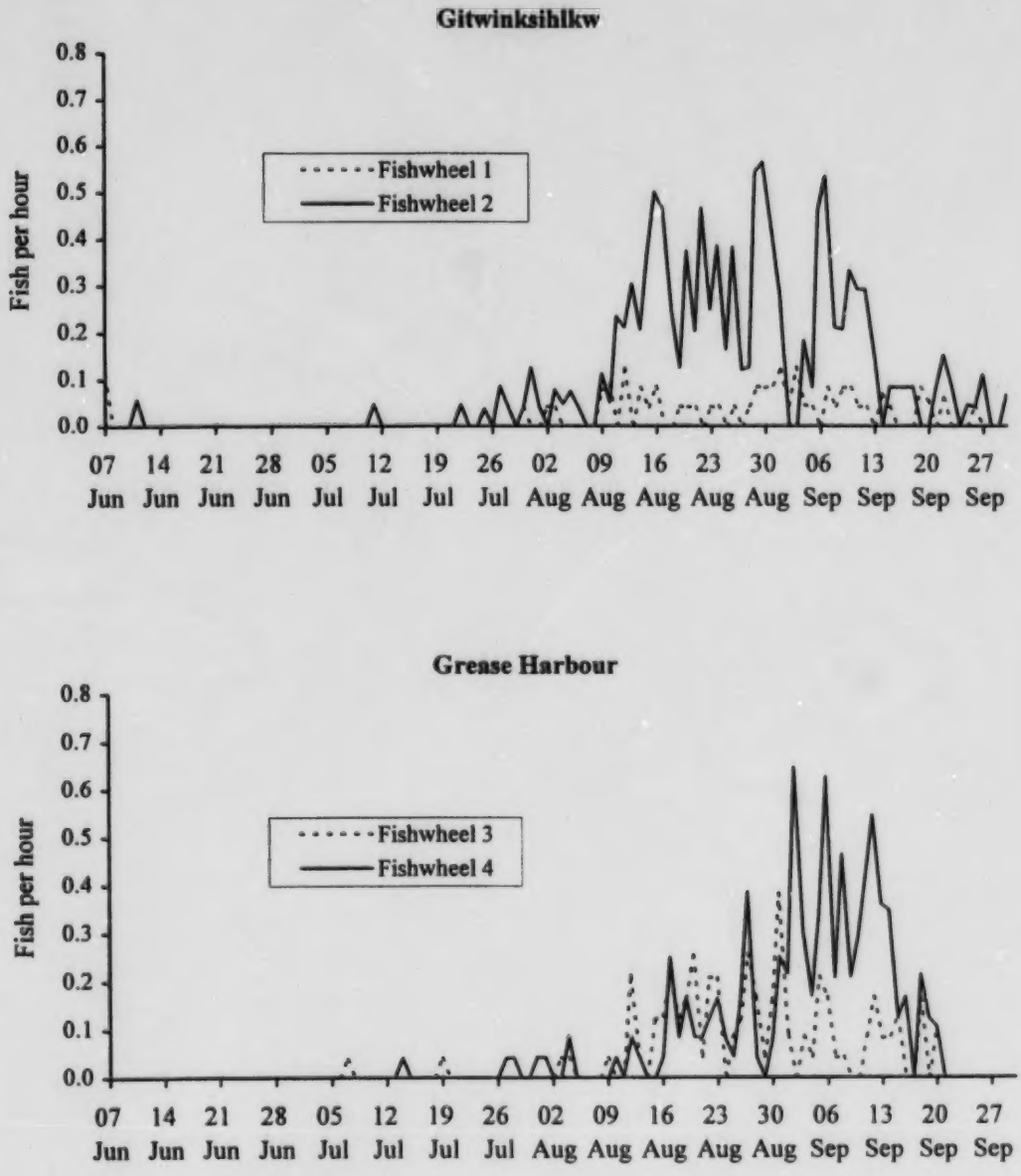

Figure 6. Fishwheel CPE (catch per wheel hour) for adult steelhead captured with four fishwheels on the Nass River, 1999.

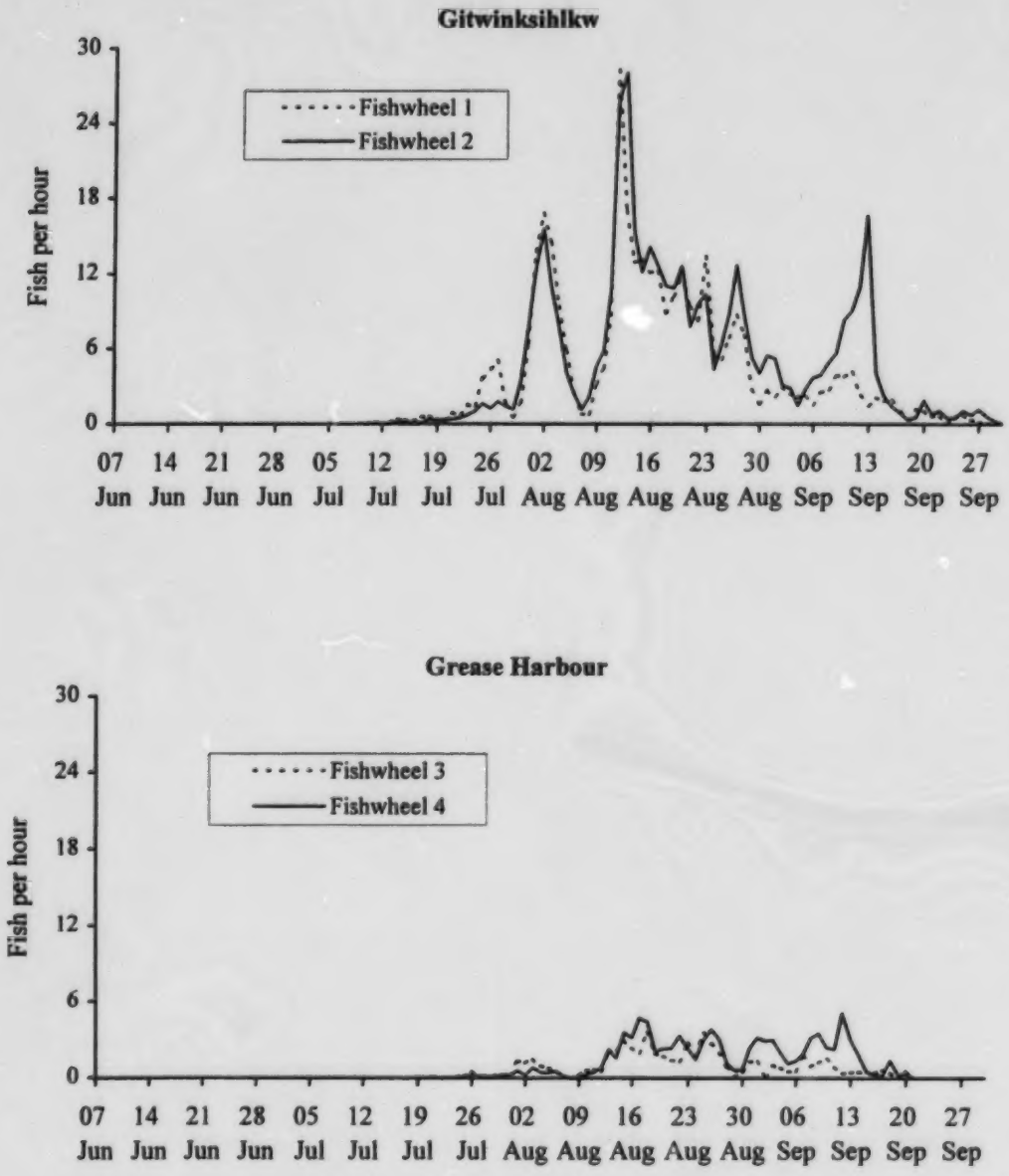

Figure 7. Fishwheel CPE (catch per wheel hour) for adult pink salmon captured with four fishwheels on the Nass River, 1999.

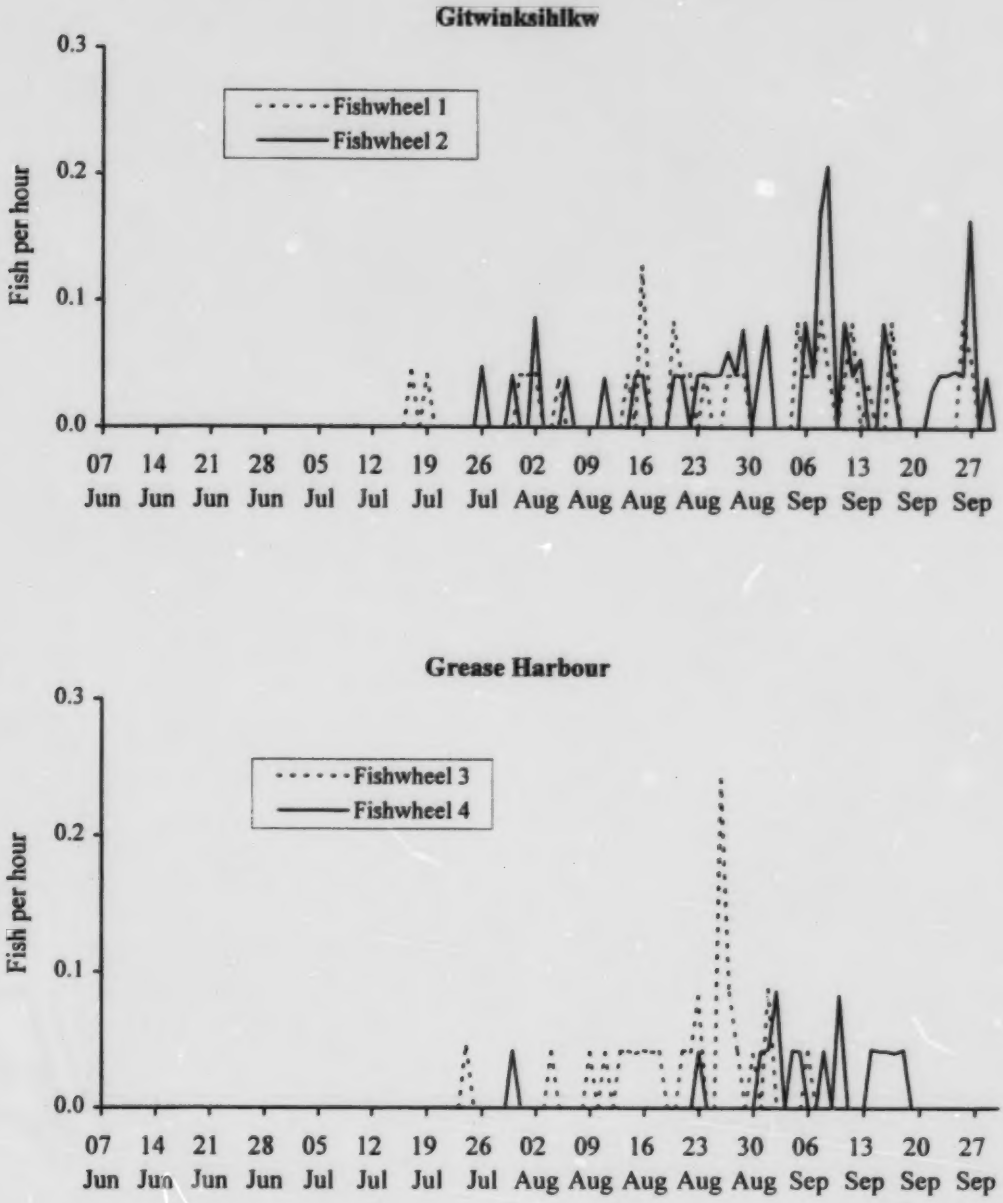

Figure 8. Fishwheel CPE (catch per wheel hour) for adult chum salmon captured with four fishwheels on the Nass River, 1999.

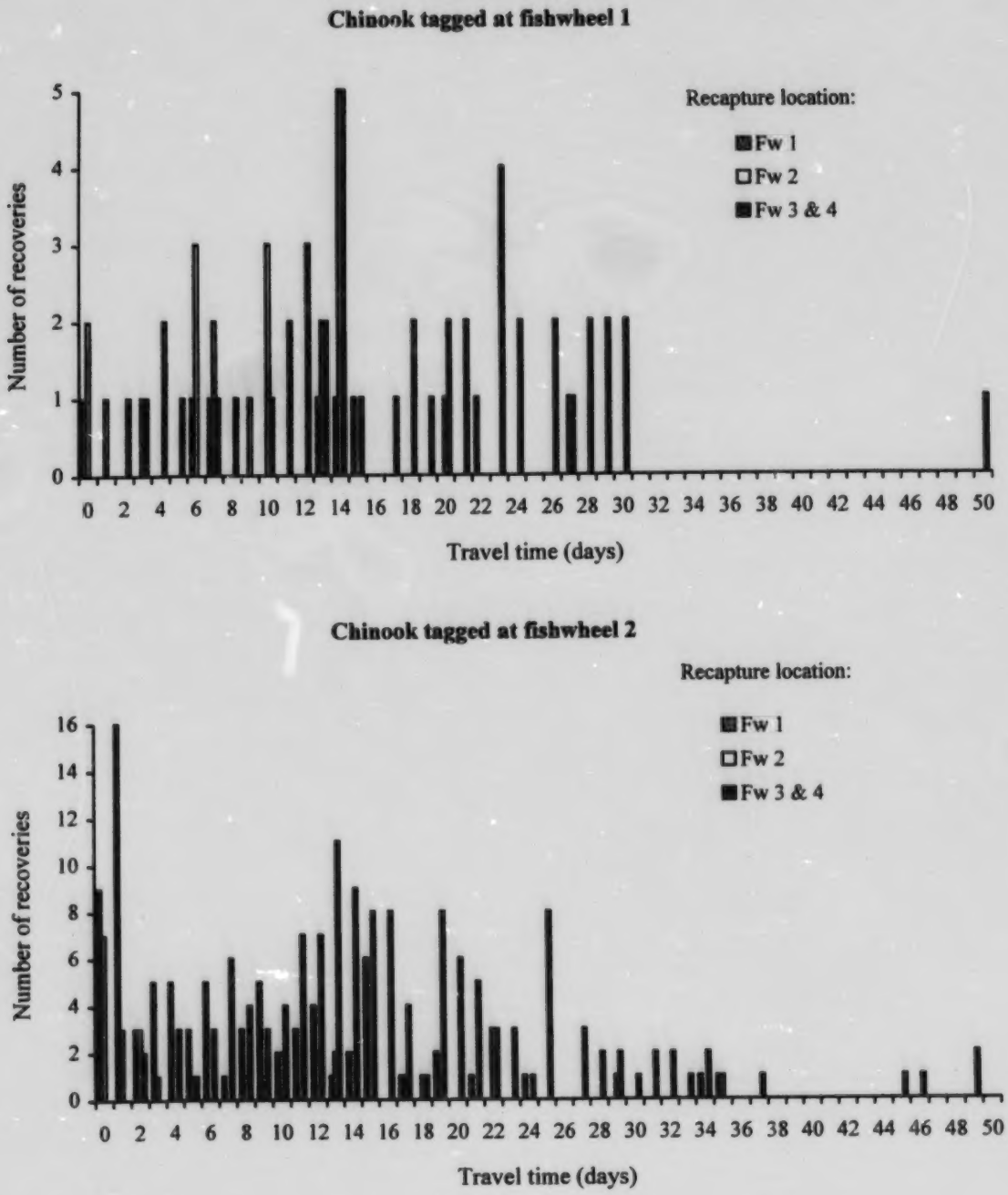

Figure 9. Time between release and recapture for chinook salmon tagged at fishwheels 1 and 2 and subsequently recaptured in each of the four fishwheels, 1999. Fishwheel 3 and 4 were pooled for clarity.

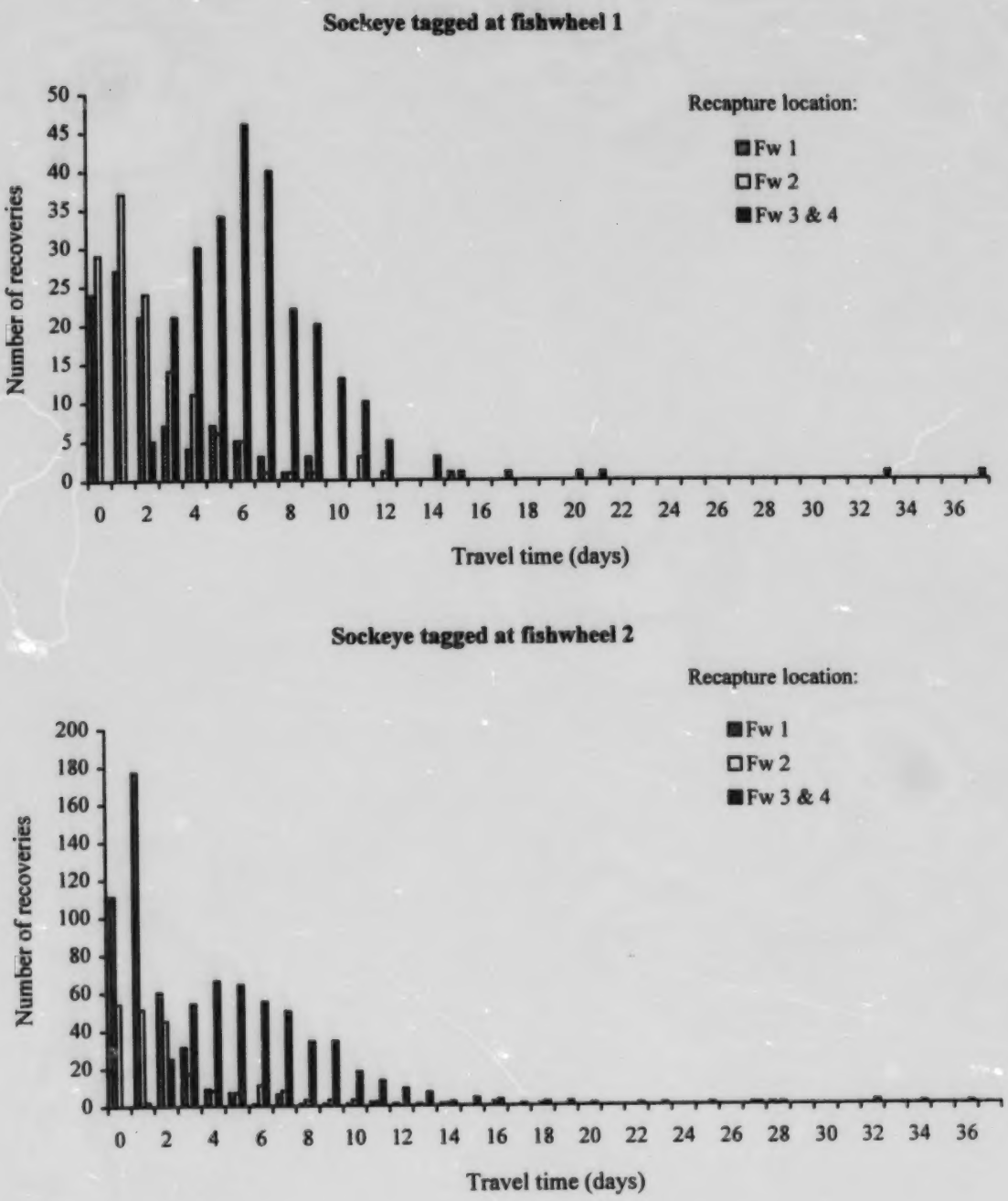

Figure 10. Time between release and recapture for sockeye salmon tagged at fishwheels 1 and 2 and subsequently recaptured in each of the four fishwheels, 1999. Fishwheel 3 and 4 were pooled for clarity.

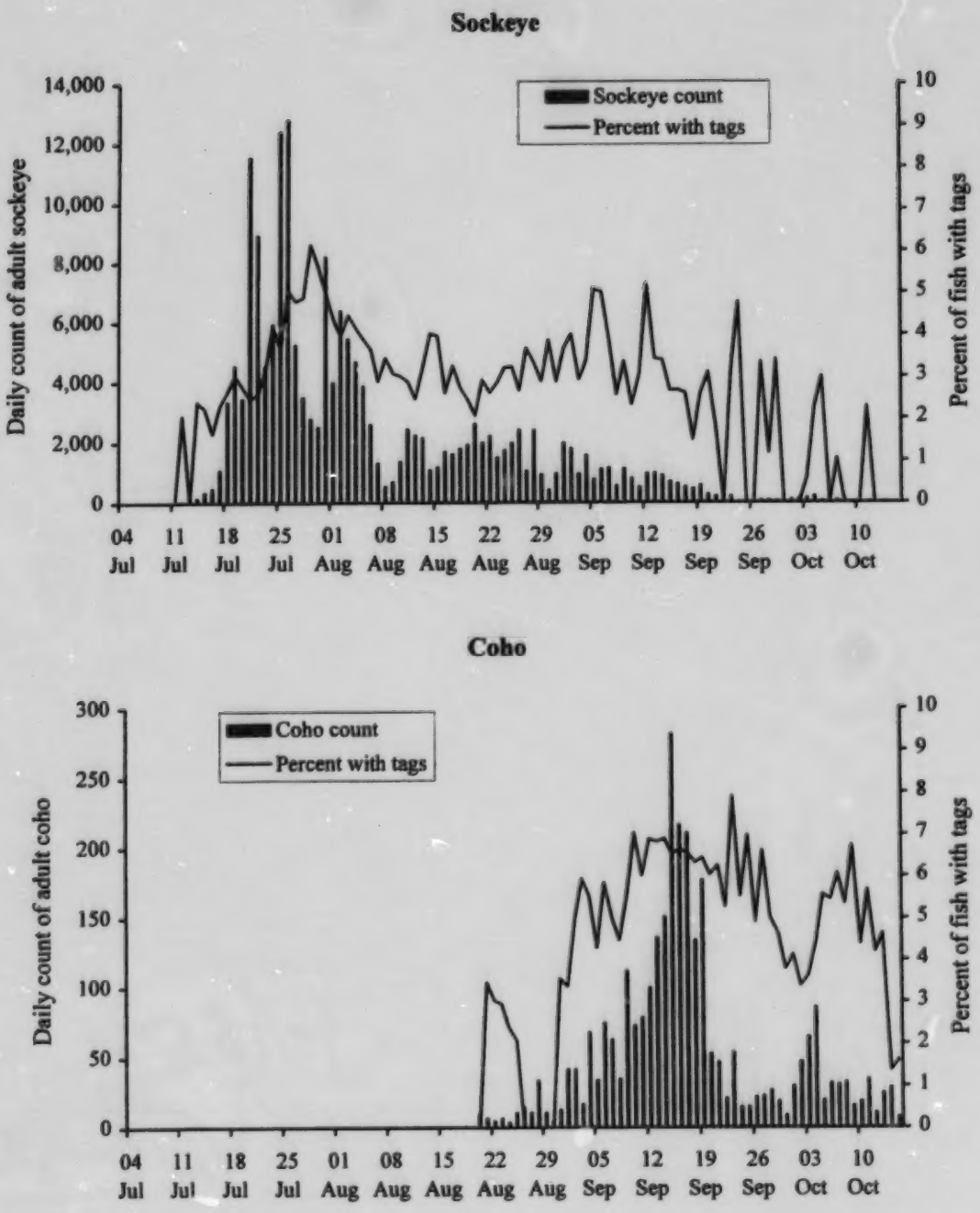

Figure 11. Daily counts and percent of fish with tags for sockeye and coho salmon passing through the Meziadin fishway, 1999. A running 5-day average was used for the percent of coho salmon with tags.

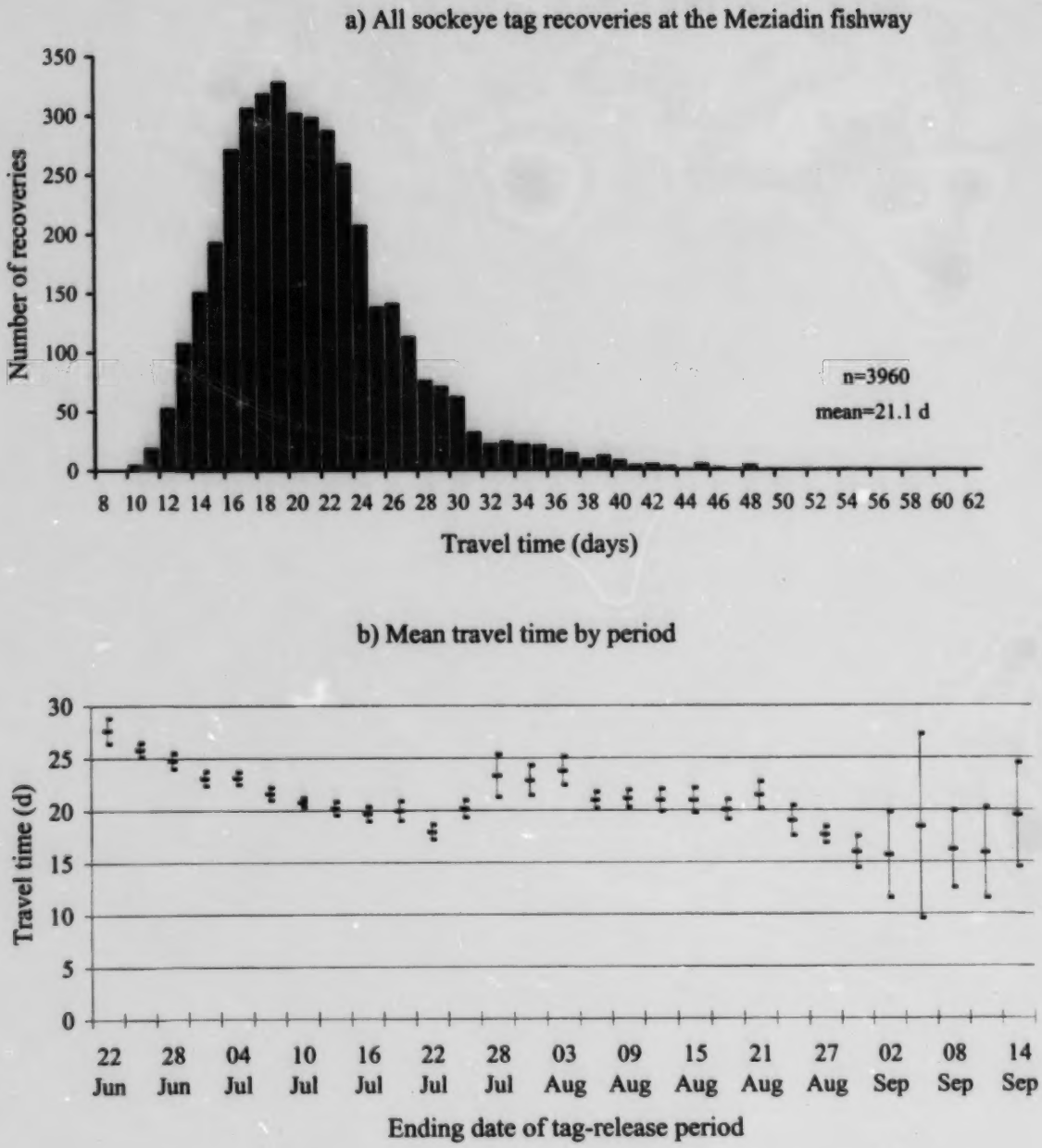

Figure 12. a) The distribution of travel times (days) to the Meziadin fishway for sockeye salmon tagged at the Nass River fishwheels and recovered at the Meziadin fishway, 1999. b) Mean travel time (with 95% confidence intervals) for 3-day release periods.

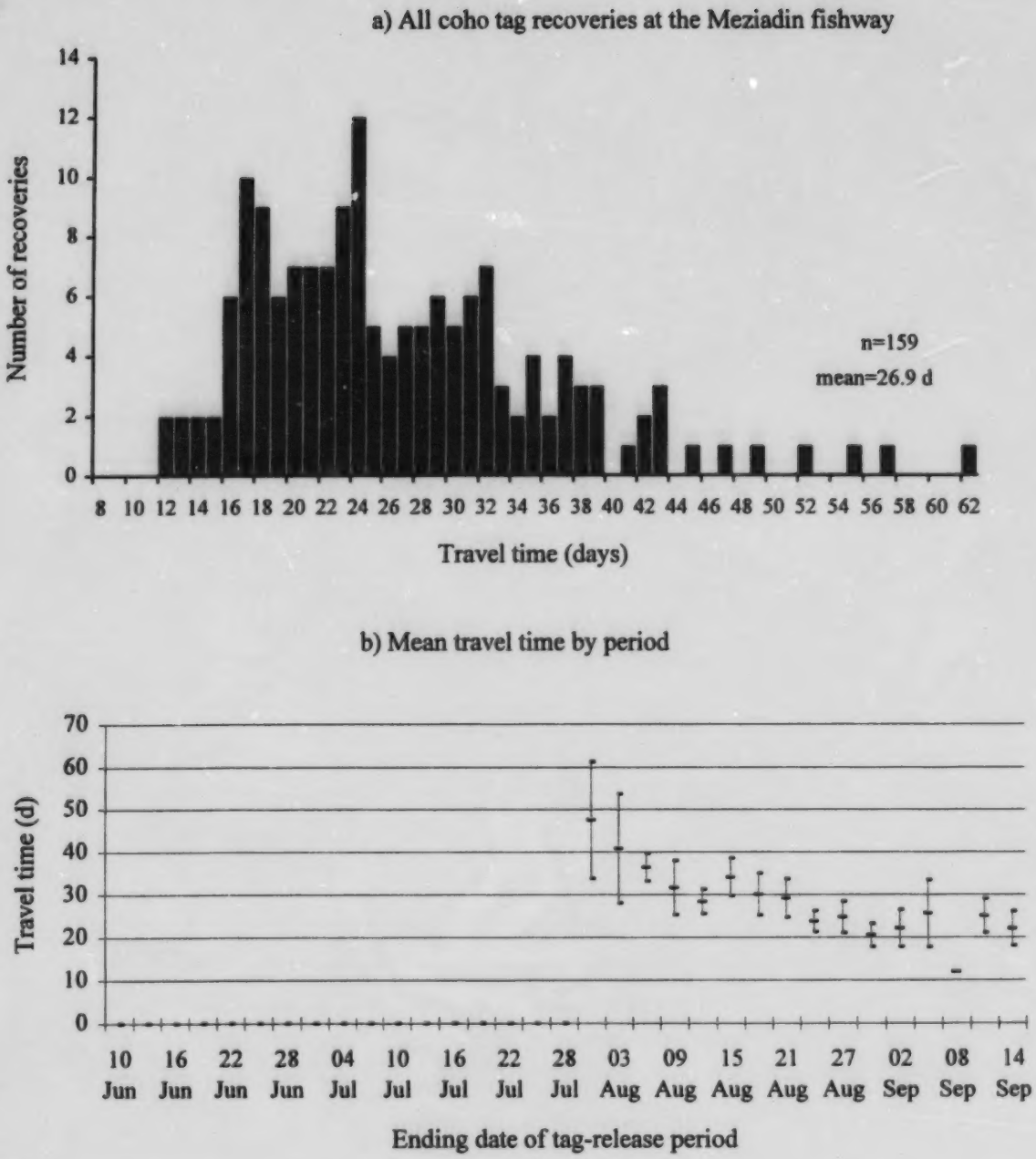

Figure 13. a) The distribution of travel times (days) to the Meziadin fishway for coho salmon tagged at the Nass River fishwheels and recovered at the Meziadin fishway, 1999. b) Mean travel time (with 95% confidence intervals) for 3-day release periods.

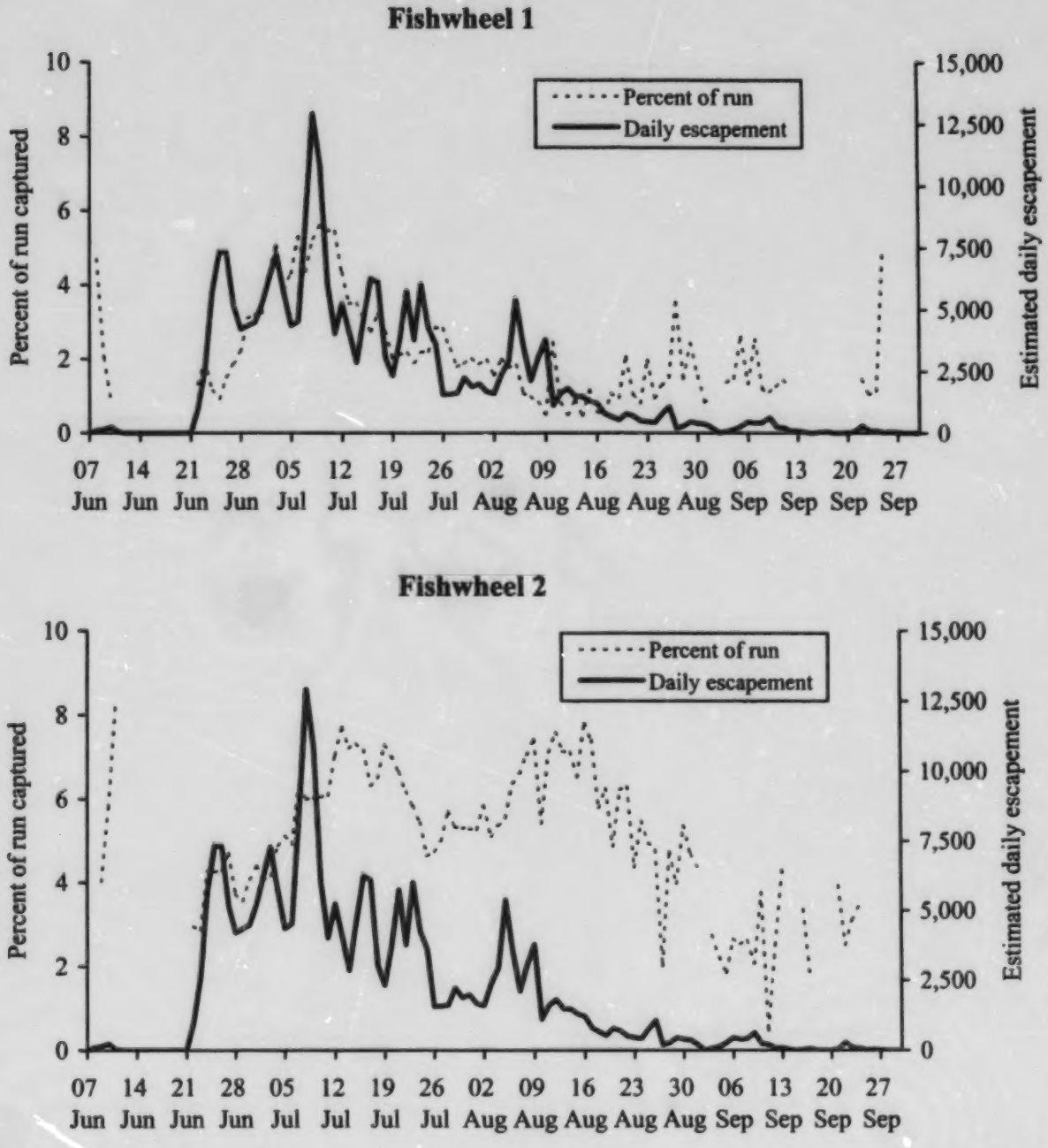

Figure 14. Percent of the sockeye salmon run captured by fishwheels 1 and 2 versus estimated daily escapement, 1999.

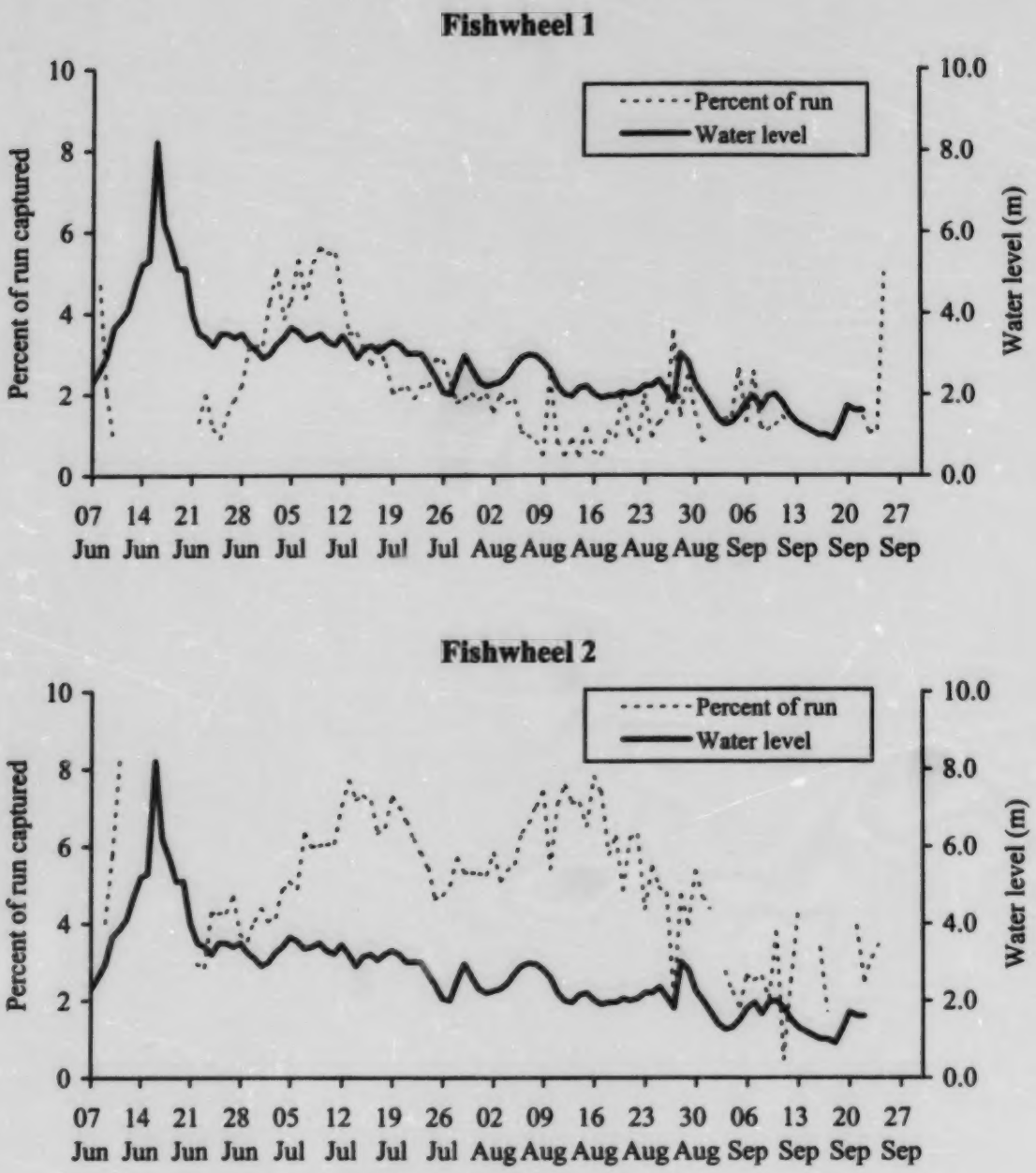

Figure 15. Percent of the sockeye salmon run captured by fishwheels 1 and 2 versus level of the Nass River at Gitwinksihlkw, 1999.

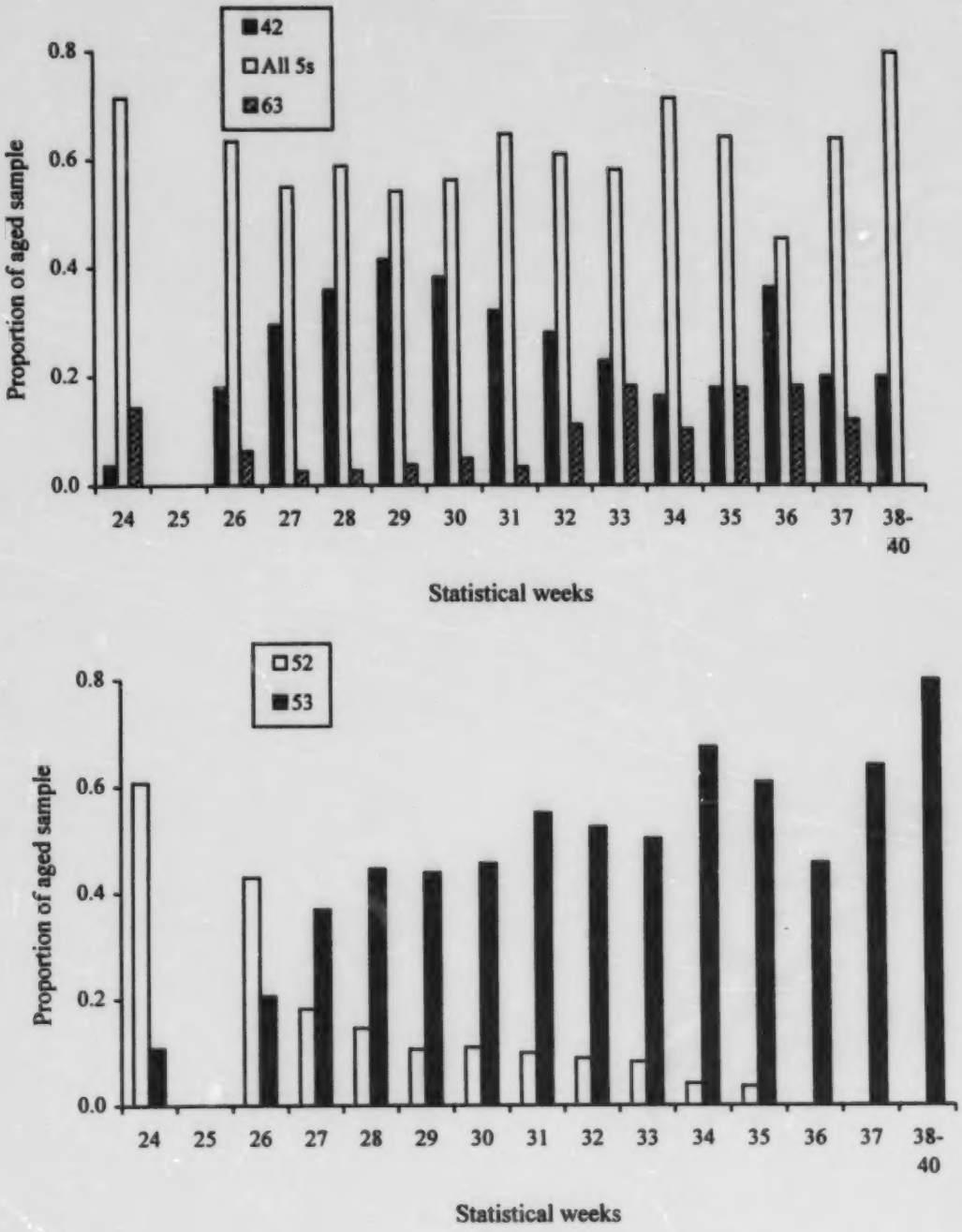

Figure 16. Weekly age composition of successfully aged sockeye salmon sampled from the Nass River fishwheel catch, 1999 (most common ages only, top: the aged-five fish were pooled for clarity).

APPENDIX A

Water temperature/level data and fishwheel effort, 1999

Table A-1. Water level and temperature collected in the Nass River near Gitwinksihlkw, 7 June to 30 September 1999.

Date	Depth (m)	Temp. (°C)	Date	Depth (m)	Temp. (°C)	Date	Depth (m)	Temp. (°C)
7-Jun	2.3		18-Jul	3.2		28-Aug	3.0	10.0
8-Jun	2.6		19-Jul	3.3		29-Aug	2.8	10.0
9-Jun	3.0	9.0	20-Jul	3.2		30-Aug	2.3	10.0
10-Jun	3.7		21-Jul	3.0		31-Aug	2.0	10.0
11-Jun	3.9	8.0	22-Jul	3.0	10.0	1-Sep	1.7	
12-Jun	4.1		23-Jul	3.0		2-Sep	1.4	10.0
13-Jun	4.7		24-Jul	2.7	9.0	3-Sep	1.3	10.0
14-Jun	5.2	8.0	25-Jul	2.4	9.0	4-Sep	1.3	11.0
15-Jun	5.3	9.0	26-Jul	2.1	9.0	5-Sep	1.5	11.0
16-Jun	8.2		27-Jul	2.0	10.0	6-Sep	1.8	10.0
17-Jun	6.2		28-Jul	2.5	10.0	7-Sep	2.0	10.0
18-Jun	5.7		29-Jul	3.0		8-Sep	1.7	12.0
19-Jun	5.1		30-Jul	2.6	11.0	9-Sep	2.0	10.0
20-Jun	5.1		31-Jul	2.3	10.0	10-Sep	2.0	10.0
21-Jun	4.0		1-Aug	2.2	11.0	11-Sep	1.8	
22-Jun	3.5		2-Aug	2.3	11.0	12-Sep	1.5	9.0
23-Jun	3.4		3-Aug	2.3	11.0	13-Sep	1.3	10.0
24-Jun	3.2		4-Aug	2.5	11.0	14-Sep	1.2	
25-Jun	3.5		5-Aug	2.7		15-Sep	1.1	10.0
26-Jun	3.5		6-Aug	2.9		16-Sep	1.0	10.0
27-Jun	3.4	9.0	7-Aug	3.0	13.0	17-Sep	1.0	
28-Jun	3.5	8.0	8-Aug	3.0	11.0	18-Sep	0.9	
29-Jun	3.3	8.0	9-Aug	2.8		19-Sep	1.3	10.0
30-Jun	3.1		10-Aug	2.6		20-Sep	1.7	
1-Jul	2.9		11-Aug	2.2		21-Sep	1.6	
2-Jul	3.0	9.0	12-Aug	2.0		22-Sep	1.6	10.0
3-Jul	3.3	10.0	13-Aug	2.0	12.0	23-Sep		
4-Jul	3.4	10.0	14-Aug	2.2	12.0	24-Sep		
5-Jul	3.7	9.0	15-Aug	2.2	11.0	25-Sep		
6-Jul	3.6	9.0	16-Aug	2.0	13.0	26-Sep		
7-Jul	3.4	10.0	17-Aug	1.9	12.0	27-Sep		
8-Jul	3.4	10.0	18-Aug	2.0	12.0	28-Sep		
9-Jul	3.5	10.0	19-Aug	2.0		29-Sep		
10-Jul	3.3	10.0	20-Aug	2.1	13.0	30-Sep		
11-Jul	3.2	9.0	21-Aug	2.0				
12-Jul	3.5	9.0	22-Aug	2.1		Mean:	2.7	10.2
13-Jul	3.2	10.0	23-Aug	2.2	11.0	Median:	2.7	10.0
14-Jul	2.9	10.0	24-Aug	2.2	11.0	Max:	0.9	8.0
15-Jul	3.2		25-Aug	2.4	11.0	Min:	7.3	0.0
16-Jul	3.2		26-Aug	2.1	10.0			
17-Jul	3.1		27-Aug	1.8				

Table A-2. Summary of daily fishwheel effort (hours), effort used to calculated catch per effort (CPE) and fishwheel speed (RPM) four fishwheels operated on the Nass River, 1999.

	Fishwheel 1			Fishwheel 2			Fishwheel 3			Fishwheel 4		
Date	Total (h)	CPE (h)	RPM	Total (h)	CPE (h)	RPM	Total (h)	CPE (h)	RPM	Total (h)	CPE (h)	RPM
7-Jun	13.8	8.9	2.6	5.2	0.0	0.8				12.2	6.0	2.6
8-Jun	24.0	23.1	2.6	23.3	22.4	1.6	15.0	8.7	2.8	24.0	23.8	2.8
9-Jun	24.0	23.6	2.5	24.0	23.6	2.7	24.0	24.2	2.9	24.0	24.2	2.7
10-Jun	24.0	24.0	2.5	24.0	24.9	2.9	17.6	17.3	2.9	24.0	23.8	1.6
11-Jun	24.0	24.0	2.5	18.0	17.7	2.2	12.0	12.4	3.6	15.0	13.4	1.7
12-Jun	6.0	8.8	2.7	9.3	15.3		6.6	6.8		6.7	6.9	
13-Jun												
14-Jun												
15-Jun												
16-Jun												
17-Jun												
18-Jun												
19-Jun												
20-Jun												
21-Jun												
22-Jun	13.7	8.7	2.3	15.1	10.1	2.1						
23-Jun	24.0	23.7	2.2	24.0	22.3	1.9						
24-Jun	24.0	22.8	2.2	24.0	24.4	1.9						
25-Jun	24.0	24.7	2.3	24.0	22.5	1.9	12.0	11.3	3.2			
26-Jun	24.0	23.7	2.3	24.0	24.2	1.9						
27-Jun	24.0	23.0	2.4	24.0	25.2	2.2						
28-Jun	24.0	24.6	2.1	24.0	23.8	2.2						
29-Jun	24.0	24.9	2.1	24.0	25.5	1.9	9.6	8.2	3.3			
30-Jun	24.0	24.8	2.0	24.0	24.6	1.9	24.0	24.5	2.9	6.7	5.7	3.3
1-Jul	24.0	22.3	1.9	24.0	22.2	2.0	24.0	24.3	2.7	24.0	24.5	3.2
2-Jul	24.0	23.5	1.9	24.0	23.6	1.8	24.0	21.9	2.8	24.0	24.9	3.1
3-Jul	24.0	26.0	2.1	24.0	24.0	2.1	23.5	26.8	2.9	23.8	25.3	3.1
4-Jul	24.0	23.7	2.2	24.0	26.1	2.0	24.0	21.9	3.3	24.0	22.0	2.8
5-Jul	24.0	22.8	2.1	24.0	22.8	2.1	23.8	23.8	3.5	23.6	24.0	2.3
6-Jul	23.6	25.3	2.2	24.0	25.0	2.3	22.0	22.0	3.4	24.0	23.7	2.5
7-Jul	24.0	25.0	2.0	24.0	24.9	2.1	24.0	26.2	3.1	24.0	25.5	2.3
8-Jul	24.0	25.0	2.1	24.0	23.4	2.0	23.8	23.7	3.2	23.8	23.3	2.6
9-Jul	24.0	24.5	2.0	24.0	25.1	2.0	24.0	22.8	3.1	23.7	22.4	2.6
10-Jul	24.0	21.9	2.0	24.0	21.9	1.8	23.8	23.4	3.1	24.0	24.8	2.8
11-Jul	24.0	23.2	1.8	24.0	21.7	2.0	24.0	25.4	3.0	23.0	23.7	1.7
12-Jul	23.8	25.6	2.0	24.0	26.7	1.9	21.4	21.7	2.7	23.8	23.7	2.6
13-Jul	24.0	22.4	1.9	24.0	24.0	2.0	23.7	22.8	2.9	24.0	23.2	2.7
14-Jul	24.0	23.6	1.8	24.0	22.5	1.9	24.0	24.9	2.8	24.0	24.3	3.1
15-Jul	23.0	23.2	2.1	24.0	24.0	1.9	23.8	22.6	3.0	24.0	23.5	3.2
16-Jul	24.0	25.5	2.0	24.0	25.6	1.9	24.0	23.7	2.7	23.9	23.9	3.1
17-Jul	24.0	22.6	2.0	24.0	22.6	1.8	24.0	23.9	3.1	23.8	23.6	3.2
18-Jul	24.0	22.6	2.1	24.0	23.6	1.9	24.0	23.2	3.0	23.6	23.7	3.1
19-Jul	24.0	24.1	2.2	24.0	24.4	1.9	24.0	24.4	3.2	23.9	23.5	3.0
20-Jul	24.0	24.0	2.0	24.0	24.4	1.9	24.0	23.7	2.8	23.9	23.6	3.1
21-Jul	24.0	25.5	2.1	24.0	23.7	1.9	24.0	24.3	2.7	24.0	24.1	3.1
22-Jul	24.0	22.0	2.2	24.0	22.1	2.0	24.0	23.8	2.6	24.0	24.0	3.0
23-Jul	24.0	28.8	2.0	24.0	28.1	1.8	23.8	25.8	2.5	24.0	25.7	3.1

Table A-2. Summary of daily fishwheel effort (hours), effort used to calculated catch per effort (CPE) and fishwheel speed (RPM) four fishwheels operated on the Nass River, 1999.

	Fishwheel 1			Fishwheel 2			Fishwheel 3			Fishwheel 4		
Date	Total (h)	CPE (h)	RPM	Total (h)	CPE (h)	RPM	Total (h)	CPE (h)	RPM	Total (h)	CPE (h)	RPM
24-Jul	24.0	20.7	2.2	24.0	20.8	1.7	24.0	22.2	2.3	24.0	22.5	3.1
25-Jul	24.0	27.2	2.0	24.0	27.6	1.9	24.0	27.5	2.0	24.0	27.1	2.8
26-Jul	24.0	19.6	2.0	24.0	20.9	1.8	24.0	20.6	1.5	24.0	19.3	2.6
27-Jul	24.0	25.1	2.0	22.3	23.6	1.8	24.0	23.6	1.8	24.0	24.8	2.7
28-Jul	24.0	23.5	2.2	24.0	23.4	2.1	23.8	23.3	2.3	24.0	23.7	3.1
29-Jul	24.0	24.7	2.2	24.0	23.2	2.5	24.0	24.2	2.7	24.0	24.3	2.6
30-Jul	24.0	24.5	2.3	24.0	24.4	2.4	24.0	24.4	2.3	23.4	23.8	2.8
31-Jul	24.0	24.2	1.9	24.0	24.1	2.3	24.0	23.8	2.1	24.0	23.8	2.6
1-Aug	24.0	24.3	2.0	24.0	23.8	2.2	24.0	24.0	1.8	24.0	23.9	2.6
2-Aug	23.9	23.3	2.1	24.0	23.1	2.0	24.0	23.7	1.9	24.0	23.8	2.8
3-Aug	24.0	24.9	2.1	24.0	25.9	2.1	24.0	24.6	1.9	24.0	24.7	2.7
4-Aug	24.0	22.3	2.3	24.0	21.2	2.1	24.0	24.1	2.1	24.0	23.6	2.6
5-Aug	24.0	26.6	2.3	24.0	26.8	2.5	24.0	23.4	2.7	23.7	23.0	2.9
6-Aug	24.0	22.5	2.5	24.0	25.3	2.3	24.0	24.4	2.7	24.0	25.1	2.9
7-Aug	24.0	21.6	2.4	24.0	22.4	2.3	24.0	22.5	2.7	23.7	23.2	2.6
8-Aug	24.0	24.6	2.3	24.0	24.1	2.3	24.0	25.0	2.5	22.9	23.2	2.5
9-Aug	24.0	26.0	2.2	24.0	26.8	2.3	24.0	24.4	2.5	23.5	23.5	2.7
10-Aug	24.0	22.5	2.2	24.0	19.5	2.1	24.0	23.9	2.1	24.0	24.0	2.6
11-Aug	24.0	25.2	1.8	24.0	25.6	2.0	23.8	24.4	1.7	24.0	24.6	2.5
12-Aug	24.0	24.2	1.8	24.0	23.7	2.1	24.0	23.7	1.7	24.0	23.6	2.4
13-Aug	24.0	23.1	1.8	24.0	23.1	2.0	24.0	23.9	1.7	24.0	24.3	2.4
14-Aug	24.0	24.0	1.3	24.0	24.2	2.0	24.0	23.7	1.8	24.0	23.7	2.4
15-Aug	24.0	24.5	1.9	24.0	24.3	2.2	24.0	24.8	1.9	24.0	24.6	2.6
16-Aug	24.0	23.6	1.8	24.0	24.0	1.8	24.0	23.5	1.7	23.9	23.6	2.3
17-Aug	23.5	23.1	1.9	24.0	23.6	2.1	24.0	24.2	1.6	24.0	24.1	2.5
18-Aug	24.0	24.0	2.1	24.0	24.1	2.0	24.0	23.9	1.7	24.0	23.9	2.6
19-Aug	24.0	24.1	1.7	24.0	23.9	1.8	24.0	24.3	1.5	24.0	24.2	2.5
20-Aug	24.0	24.0	1.7	24.0	24.1	1.9	23.5	23.6	1.6	24.0	23.7	2.6
21-Aug	24.0	24.6	1.8	24.0	24.6	1.7	24.0	23.5	1.6	24.0	23.7	2.6
22-Aug	24.0	23.3	2.1	24.0	23.6	1.7	24.0	24.0	1.9	23.8	23.7	2.7
23-Aug	24.0	24.3	2.1	24.0	24.0	1.9	24.0	24.2	1.9	24.0	24.2	2.8
24-Aug	24.0	23.2	2.0	24.0	23.4	2.0	24.0	24.7	1.7	24.0	24.8	2.5
25-Aug	24.0	24.7	2.4	24.0	24.4	2.0	24.0	23.0	1.8	24.0	23.3	2.5
26-Aug	24.0	23.3	2.2	24.0	23.5	2.0	24.0	24.8	1.8	23.5	23.8	2.2
27-Aug	24.0	24.5	1.8	16.3	16.6	2.2	24.0	23.4	1.6	23.4	23.4	2.3
28-Aug	24.0	23.6	1.9	24.0	23.6	1.8	24.0	24.1	1.7	24.0	23.7	2.4
29-Aug	23.5	23.6	2.3	24.0	25.7	2.1	24.0	23.3	2.4	23.5	23.1	2.6
30-Aug	24.0	24.5	1.7	24.0	23.0	1.8	24.0	25.1	1.7	23.9	24.7	2.1
31-Aug	24.0	23.0	1.3	24.0	23.3	1.7	24.0	23.5	1.8	24.0	23.9	1.7
1-Sep	24.0	24.8	1.8	24.0	24.7	1.8	12.0	11.4	1.5	24.0	23.2	2.1
2-Sep	23.0	22.8	1.7	12.8	12.4	1.8	24.0	24.6	1.7	22.5	23.2	2.0
3-Sep	24.0	23.8	0.8	24.0	24.1	1.2	23.5	23.2	1.4	23.5	23.2	2.5
4-Sep	24.0	21.8	1.5	24.0	21.9	1.8	23.5	23.3	1.6	24.0	23.5	2.5
5-Sep	24.0	24.1	1.6	24.0	24.0	1.8	24.0	23.9	1.9	24.0	23.9	2.1
6-Sep	24.0	23.8	1.7	24.0	23.9	1.8	24.0	24.0	2.1	23.9	24.0	1.9
7-Sep	24.0	24.3	1.9	24.0	24.3	2.1	24.0	24.0	2.2	23.8	24.1	2.0
8-Sep	24.0	23.6	1.2	24.0	23.6	1.8	23.7	23.4	1.9	24.0	23.7	1.8

Table A-2. Summary of daily fishwheel effort (hours), effort used to calculated catch per effort (CPE) and fishwheel speed (RPM) four fishwheels operated on the Nass River, 1999.

	Fishwheel 1			Fishwheel 2			Fishwheel 3			Fishwheel 4		
Date	Total (h)	CPE (h)	RPM	Total (h)	CPE (h)	RPM	Total (h)	CPE (h)	RPM	Total (h)	CPE (h)	RPM
9-Sep	24.0	24.2	1.9	24.0	24.1	1.9	24.0	23.9	2.3	24.0	23.9	2.1
10-Sep	24.0	24.1	2.0	24.0	24.1	2.0	24.0	24.2	2.2	24.0	24.1	2.3
11-Sep	24.0	23.8	1.4	24.0	23.9	2.2	23.5	23.4	2.1	24.0	23.9	1.8
12-Sep	24.0	24.2	0.9	24.0	23.9	1.8	24.0	23.9	1.7	24.0	23.8	1.9
13-Sep	24.0	18.0	0.6	16.0	18.2	1.6	23.5	24.5	1.5	24.0	25.0	2.2
14-Sep	24.0	29.8	1.6	15.0	13.0	1.7	24.0	23.1	1.8	24.0	23.0	2.1
15-Sep	24.0	23.9	1.6	24.0	23.7	0.6	14.0	15.5	1.6	24.0	23.8	2.2
16-Sep	24.0	23.9	1.6	24.0	24.1	1.4	24.0	23.9	1.8	24.0	23.8	2.1
17-Sep	24.0	24.0	1.8	24.0	23.9	1.7	23.6	23.5	1.8	24.0	24.7	1.9
18-Sep	24.0	23.7	1.6	24.0	23.8	1.5	24.0	24.3	1.7	24.0	23.4	2.0
19-Sep	24.0	24.2	1.4	24.0	24.1	1.2	24.0	23.9	1.4	24.0	24.1	2.3
20-Sep	24.0	18.4	1.9	24.0	18.3	2.1	11.8	19.3	2.2	9.1	18.9	2.1
21-Sep	24.0	24.1	1.9	24.0	24.2	1.8						
22-Sep	24.0	33.1	1.9	24.0	33.1	1.9						
23-Sep	24.0	23.5	2.3	24.0	23.6	2.2						
24-Sep	24.0	22.7	2.3	24.0	23.4	2.2						
25-Sep	24.0	23.1	2.0	24.0	22.0	1.9						
26-Sep	24.0	23.3	1.0	24.0	23.8	1.2						
27-Sep	24.0	18.2	1.8	24.0	18.2	1.8						
28-Sep	8.5	11.8	0.9	24.0	23.8	1.0						
29-Sep	24.0	24.5		24.0	24.7	1.8						
30-Sep	15.7	29.9		14.6	29.7	1.9						
Totals	2501.9	2501.9		2471.7	2471.7		2044.5	2044.5		2055.1	2055.1	

Total hours of effort all fishwheels combined:	9073.2
Total number of days operated, all fishwheels:	393
Overall percent operational while fishing:	96.2%

Total number of days operated by fishwheel:			
107	107	90	89
Percent operational:			
97%	96%	95%	96%

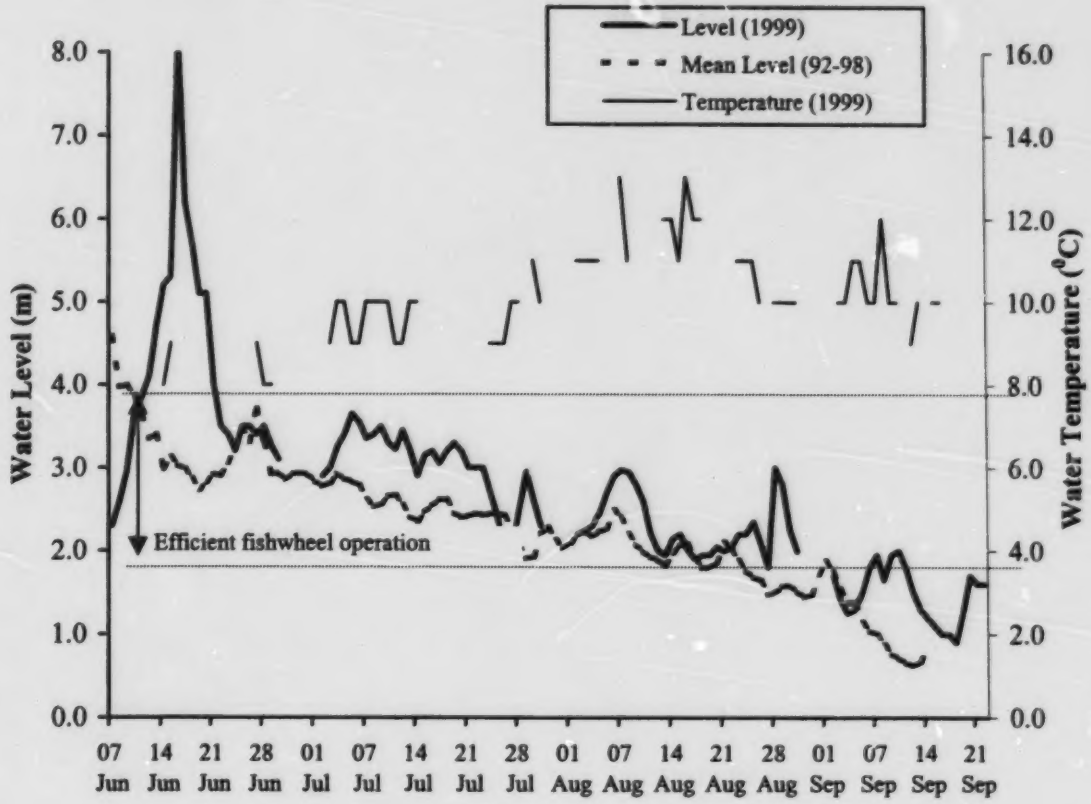

Figure A-1. Daily maximum water temperature and level in the Nass River near Gitwinksihlkw, 1999. The mean water level from 1992 to 1998 is shown for comparison.

APPENDIX B

Daily catches at the Nass River fishwheels, 1999

Table B-1. Daily catches, numbers of fish tagged and CPE (adult catch per hour) for chinook salmon captured in the Nass River fishwheels, 1999.

Date	Fishwheel 1						Fishwheel 2						Fishwheel 3						Fishwheel 4					
	Adults	Cum.	Tagged	Jacks	Cum.	CPE	Adults	Cum.	Tagged	Jacks	Cum.	CPE	Adults	Cum.	Tagged	Jacks	Cum.	CPE	Adults	Cum.	Tagged	Jacks	Cum.	CPE
7-Jun	0	0	0	0	0	0.00	0	0	0	0	0								0	0	0	0	0	0.00
8-Jun	1	1	1	0	0	0.04	0	0	0	0	0	0.00	1	1	1	0	0	0.12	3	3	3	0	0	0.13
9-Jun	1	2	1	0	0	0.04	6	6	6	1	1	0.25	3	4	3	1	1	0.12	1	4	1	0	0	0.04
10-Jun	1	3	1	0	0	0.04	6	12	6	0	1	0.24	0	4	0	0	1	0.00	1	5	1	0	0	0.04
11-Jun	0	3	0	0	0	0.00	3	15	3	0	1	0.17	0	4	0	0	1	0.00	0	5	0	0	0	0.00
12-Jun	0	3	0	0	0	0.00	0	15	0	0	1	0.00	0	4	0	0	1	0.00	0	5	0	0	0	0.00
13 Jun - 21 Jun	0	3	0	0	0		0	15	0	0	1		0	4	0	0	1		0	5	0	0	0	
22-Jun	2	5	2	0	0	0.23	4	19	4	0	1	0.40	0	4	0	0	1		0	5	0	0	0	
23-Jun	10	15	9	0	0	0.42	13	32	12	0	1	0.58	0	4	0	0	1		0	5	0	0	0	
24-Jun	11	26	9	1	1	0.48	30	62	29	1	2	1.23	0	4	0	0	1		0	5	0	0	0	
25-Jun	13	39	12	0	1	0.53	67	129	64	3	5	2.98	11	15	10	1	2	0.98	0	5	0	0	0	
26-Jun	20	59	18	0	1	0.84	60	189	59	1	6	2.48	0	15	0	0	2		0	5	0	0	0	
27-Jun	11	70	10	0	1	0.48	26	215	21	0	6	1.03	0	15	0	0	2		0	5	0	0	0	
28-Jun	8	78	7	0	1	0.33	14	229	13	2	8	0.59	0	15	0	0	2		0	5	0	0	0	
29-Jun	9	87	8	1	2	0.36	10	239	5	0	8	0.39	9	24	9	1	3	1.09	0	5	0	0	0	
30-Jun	21	108	21	2	4	0.85	74	313	69	3	11	3.01	32	56	29	1	4	1.31	0	5	0	0	0	0.00
1-Jul	26	134	24	4	8	1.16	94	407	85	1	12	4.24	76	132	69	8	12	3.13	21	26	0	1	1	0.86
2-Jul	30	164	30	2	10	1.28	102	509	95	8	20	4.32	101	233	73	5	17	4.62	148	174	77	0	1	5.94
3-Jul	39	203	37	6	16	1.50	84	593	78	7	27	3.50	81	314	46	11	28	3.02	111	285	54	4	5	4.38
4-Jul	11	214	8	0	16	0.46	31	624	27	1	28	1.19	25	339	22	2	30	1.14	16	301	15	0	5	0.73
5-Jul	4	218	3	0	16	0.18	21	645	15	2	30	0.92	9	348	2	2	32	0.38	2	303	0	0	5	0.08
6-Jul	13	231	12	1	17	0.51	8	653	8	2	32	0.32	5	353	5	2	34	0.23	2	305	2	0	5	0.08
7-Jul	13	244	11	2	19	0.52	33	686	23	4	36	1.33	96	449	42	1	35	3.67	56	361	24	2	7	2.20
8-Jul	25	269	24	2	21	1.00	41	727	36	2	38	1.75	41	490	22	4	39	1.73	58	419	17	0	7	2.49
9-Jul	15	284	15	0	21	0.61	21	748	19	2	40	0.84	40	530	34	4	43	1.76	24	443	8	3	10	1.07
10-Jul	11	295	8	0	21	0.50	21	769	19	5	45	0.96	48	578	34	1	44	2.05	46	489	37	1	11	1.86
11-Jul	17	312	13	3	24	0.73	20	789	16	6	51	0.92	52	630	24	8	52	2.05	68	557	37	6	17	2.87
12-Jul	14	326	12	7	31	0.55	32	821	29	3	54	1.20	27	657	20	0	52	1.25	37	594	15	5	22	1.56
13-Jul	8	334	5	0	31	0.36	21	842	16	2	56	0.88	40	697	36	7	59	1.75	18	612	16	3	25	0.78
14-Jul	5	339	4	1	32	0.21	18	860	15	5	61	0.80	92	789	82	4	63	3.70	88	700	78	10	35	3.62
15-Jul	4	343	4	1	33	0.17	13	873	13	5	66	0.54	50	839	16	7	70	2.21	132	832	34	4	39	5.62
16-Jul	2	345	1	1	34	0.08	7	880	5	0	66	0.27	17	856	16	3	73	0.72	22	854	16	4	43	0.92
17-Jul	5	350	4	2	36	0.22	3	883	3	3	69	0.13	29	885	24	8	81	1.21	41	895	31	1	44	1.74
18-Jul	4	354	4	0	36	0.18	3	886	1	1	70	0.13	29	914	22	6	87	1.25	32	927	25	3	47	1.35
19-Jul	3	357	3	7	43	0.12	5	891	4	1	71	0.21	9	923	9	1	88	0.37	11	938	9	2	49	0.47
20-Jul	4	361	4	0	43	0.17	2	893	2	3	74	0.08	13	936	13	8	96	0.55	4	942	2	2	51	0.17
21-Jul	1	362	1	0	43	0.04	3	896	3	0	74	0.13	22	958	15	3	99	0.91	9	951	8	3	54	0.37
22-Jul	0	362	0	0	43	0.00	1	897	1	2	76	0.05	12	970	11	4	103	0.50	13	964	12	0	54	0.54
23-Jul	1	363	1	2	45	0.03	8	905	6	0	76	0.28	6	976	5	4	107	0.23	7	971	4	2	56	0.27
24-Jul	0	363	0	2	47	0.00	1	906	1	2	78	0.05	9	985	5	1	108	0.41	6	977	3	2	58	0.27
25-Jul	1	364	1	6	53	0.04	5	911	3	0	78	0.18	9	994	0	3	111	0.33	12	989	0	3	61	0.44
26-Jul	2	366	2	1	54	0.10	3	914	3	0	78	0.14	11	1005	5	4	115	0.53	15	1004	12	1	62	0.78
27-Jul	3	369	2	0	54	0.12	4	918	1	1	79	0.17	10	1015	7	0	115	0.42	20	1024	12	5	67	0.81
28-Jul	0	369	0	1	55	0.00	2	920	2	0	79	0.09	3	1018	2	0	115	0.13	5	1029	3	0	67	0.21
29-Jul	0	369	0	0	55	0.00	2	922	0	0	79	0.09	3	1021	0	1	116	0.12	3	1032	1	1	68	0.12

Table B-1. Daily catches, numbers of fish tagged and CPE (adult catch per hour) for chinook salmon captured in the Nass River fishwheels, 1999.

	Fishwheel 1						Fishwheel 2						Fishwheel 3						Fishwheel 4					
Date	Adults	Cum.	Tagged	Jacks	Cum.	CPE	Adults	Cum.	Tagged	Jacks	Cum.	CPE	Adults	Cum.	Tagged	Jacks	Cum.	CPE	Adults	Cum.	Tagged	Jacks	Cum.	CPE
30-Jul	0	369	0	1	56	0.00	1	923	1	0	79	0.04	2	1023	1	2	118	0.08	3	1035	3	1	69	0.13
31-Jul	1	370	1	0	56	0.04	2	925	2	0	79	0.08	5	1028	0	1	119	0.21	1	1036	0	4	73	0.04
1-Aug	1	371	1	0	56	0.04	1	926	1	0	79	0.04	3	1031	0	4	123	0.13	5	1041	1	3	76	0.21
2-Aug	0	371	0	0	56	0.00	2	928	2	0	79	0.09	1	1032	1	4	127	0.04	7	1048	3	5	81	0.29
3-Aug	0	371	0	0	56	0.00	5	933	5	0	79	0.19	1	1033	1	2	129	0.04	2	1050	2	0	81	0.08
4-Aug	0	371	0	0	56	0.00	1	934	1	1	80	0.05	0	1033	0	1	130	0.00	1	1051	0	0	81	0.04
5-Aug	1	372	1	0	56	0.04	4	938	3	0	80	0.15	0	1033	0	0	130	0.00	2	1053	1	0	81	0.09
6-Aug	0	372	0	0	56	0.00	2	940	2	1	81	0.08	0	1033	0	0	130	0.00	2	1055	2	0	81	0.08
7-Aug	0	372	0	0	56	0.00	1	941	1	0	81	0.04	0	1033	0	0	130	0.00	0	1055	0	0	81	0.00
8-Aug	0	372	0	0	56	0.00	2	943	1	0	81	0.08	0	1033	0	0	130	0.00	0	1055	0	0	81	0.00
9-Aug	0	372	0	0	56	0.00	0	943	0	0	81	0.00	0	1033	0	0	130	0.00	0	1055	0	0	81	0.00
10-Aug	1	373	1	0	56	0.04	1	944	1	0	81	0.05	1	1034	1	1	131	0.04	0	1055	0	0	81	0.00
11-Aug	1	374	0	0	56	0.04	5	949	4	0	81	0.20	1	1035	1	0	131	0.04	1	1056	0	1	82	0.04
12-Aug	0	374	0	1	57	0.00	3	952	3	0	81	0.13	0	1035	0	0	131	0.00	3	1059	0	2	84	0.13
13-Aug	0	374	0	0	57	0.00	1	953	0	0	81	0.04	1	1036	1	0	131	0.04	0	1059	0	2	86	0.00
14-Aug	3	377	3	0	57	0.12	3	956	2	1	82	0.12	0	1036	0	0	131	0.00	4	1063	0	1	87	0.17
15-Aug	1	378	1	1	58	0.04	3	959	3	0	82	0.12	0	1036	0	0	131	0.00	3	1066	1	0	87	0.12
16-Aug	0	378	0	0	58	0.00	2	961	2	2	84	0.08	0	1036	0	0	131	0.00	0	1066	0	0	87	0.00
17-Aug	0	378	0	0	58	0.00	1	962	0	0	84	0.04	1	1037	1	0	131	0.04	1	1067	1	1	88	0.04
18-Aug	0	378	0	0	58	0.00	4	966	4	1	85	0.17	2	1039	0	0	131	0.08	3	1070	2	0	88	0.13
19-Aug	0	378	0	0	58	0.00	2	968	2	0	85	0.08	0	1039	0	1	132	0.00	0	1070	0	1	89	0.00
20-Aug	1	379	1	0	58	0.04	1	969	1	0	85	0.04	1	1040	0	0	132	0.04	1	1071	0	0	89	0.04
21-Aug	0	379	0	0	58	0.00	1	970	0	0	85	0.04	1	1041	1	0	132	0.04	0	1071	0	0	89	0.00
22-Aug	0	379	0	1	59	0.00	0	970	0	0	85	0.00	0	1041	0	0	132	0.00	0	1071	0	0	89	0.00
23-Aug	0	379	0	0	59	0.00	0	970	0	0	85	0.00	0	1041	0	0	132	0.00	0	1071	0	0	89	0.00
24-Aug	0	379	0	0	59	0.00	0	970	0	0	85	0.00	0	1041	0	0	132	0.00	0	1071	0	0	89	0.00
25-Aug	0	379	0	0	59	0.00	1	971	1	0	85	0.04	1	1042	1	0	132	0.04	0	1071	0	0	89	0.00
26-Aug	0	379	0	0	59	0.00	2	973	2	0	85	0.09	0	1042	0	0	132	0.00	1	1072	0	0	89	0.04
27-Aug	0	379	0	0	59	0.00	0	973	0	0	85	0.00	0	1042	0	1	133	0.00	1	1073	1	0	89	0.04
28-Aug	1	380	0	0	59	0.04	0	973	0	0	85	0.00	0	1042	0	0	133	0.00	0	1073	0	0	89	0.00
29-Aug	0	380	0	0	59	0.00	0	973	0	0	85	0.00	0	1042	0	0	133	0.00	1	1074	1	0	89	0.04
30-Aug	0	380	0	0	59	0.00	0	973	0	0	85	0.00	0	1042	0	0	133	0.00	1	1075	0	0	89	0.04
31-Aug	0	380	0	0	59	0.00	0	973	0	0	85	0.00	0	1042	0	0	133	0.00	1	1076	0	0	89	0.04
1-Sep	0	380	0	0	59	0.00	0	973	0	0	85	0.00	0	1042	0	0	133	0.00	0	1076	0	0	89	0.00
2-Sep	1	381	0	0	59	0.04	0	973	0	0	85	0.00	0	1042	0	0	133	0.00	0	1076	0	0	89	0.00
3-Sep	0	381	0	0	59	0.00	0	973	0	0	85	0.00	0	1042	0	0	133	0.00	1	1077	0	0	89	0.04
4-Sep	1	382	0	0	59	0.05	0	973	0	0	85	0.00	0	1042	0	0	133	0.00	0	1077	0	0	89	0.00
5-Sep	0	382	0	0	59	0.00	1	974	0	0	85	0.04	0	1042	0	0	133	0.00	0	1077	0	0	89	0.00
6-Sep	0	382	0	0	59	0.00	0	974	0	0	85	0.00	0	1042	0	0	133	0.00	0	1077	0	0	89	0.00
7-Sep	0	382	0	0	59	0.00	0	974	0	0	85	0.00	0	1042	0	0	133	0.00	0	1077	0	0	89	0.00
8-Sep	0	382	0	0	59	0.00	0	974	0	0	85	0.00	0	1042	0	0	133	0.00	0	1077	0	0	89	0.00
9-Sep	0	382	0	0	59	0.00	0	974	0	0	85	0.00	0	1042	0	0	133	0.00	0	1077	0	0	89	0.00
10-Sep	0	382	0	0	59	0.00	1	975	0	0	85	0.04	0	1042	0	0	133	0.00	0	1077	0	0	89	0.00
11-Sep	0	382	0	0	59	0.00	0	975	0	0	85	0.00	0	1042	0	0	133	0.00	0	1077	0	0	89	0.00
12-Sep	0	382	0	0	59	0.00	0	975	0	0	85	0.00	0	1042	0	0	133	0.00	0	1077	0	0	89	0.00

Table B-1. Daily catches, numbers of fish tagged and CPE (adult catch per hour) for chinook salmon captured in the Nass River fishwheels, 1999.

	Fishwheel 1						Fishwheel 2						Fishwheel 3						Fishwheel 4					
Date	Adults	Cum.	Tagged	Jacks	Cum.	CPE	Adults	Cum.	Tagged	Jacks	Cum.	CPE	Adults	Cum.	Tagged	Jacks	Cum.	CPE	Adults	Cum.	Tagged	Jacks	Cum.	CPE
13-Sep	0	382	0	0	59	0.00	0	975	0	0	85	0.00	0	1042	0	0	133	0.00	0	1077	0	0	89	0.00
14-Sep	0	382	0	0	59	0.00	0	975	0	0	85	0.00	0	1042	0	0	133	0.00	0	1077	0	0	89	0.00
15-Sep	0	382	0	0	59	0.00	0	975	0	0	85	0.00	0	1042	0	0	133	0.00	0	1077	0	0	89	0.00
16-Sep	0	382	0	0	59	0.00	0	975	0	0	85	0.00	0	1042	0	0	133	0.00	0	1077	0	0	89	0.00
17-Sep	0	382	0	0	59	0.00	0	975	0	0	85	0.00	0	1042	0	0	133	0.00	0	1077	0	0	89	0.00
18-Sep	0	382	0	0	59	0.00	0	975	0	0	85	0.00	0	1042	0	0	133	0.00	0	1077	0	0	89	0.00
19-Sep	0	382	0	0	59	0.00	0	975	0	0	85	0.00	0	1042	0	0	133	0.00	0	1077	0	0	89	0.00
20-Sep	0	382	0	0	59	0.00	0	975	0	0	85	0.00	0	1042	0	0	133	0.00	0	1077	0	0	89	0.00
21-Sep	0	382	0	0	59	0.00	0	975	0	0	85	0.00												
22-Sep	0	382	0	0	59	0.00	0	975	0	0	85	0.00												
23-Sep	0	382	0	0	59	0.00	0	975	0	0	85	0.00												
24-Sep	0	382	0	0	59	0.00	0	975	0	0	85	0.00												
25-Sep	0	382	0	0	59	0.00	0	975	0	0	85	0.00												
26-Sep	0	382	0	0	59	0.00	0	975	0	0	85	0.00												
27-Sep	0	382	0	0	59	0.00	0	975	0	0	85	0.00												
28-Sep	0	382	0	0	59	0.00	0	975	0	0	85	0.00												
29-Sep	0	382	0	0	59	0.00	0	975	0	0	85	0.00												
30-Sep	0	382	0	0	59	0.00	0	975	0	0	85	0.00												
Totals	382		341	59		0.15	975		864	85		0.394	1042		722	133		0.51	1077		575	89		0.52

Note 1: Lower wheels started on 7 June (FW2 at 18:50 hr and FW1 at 10:15 hr) and Upper wheels started on 7 June (FW4 at 12:00 hr) and 8 June (FW3 at 14:00).

Note 2: Shading represents non-operation of fishwheels. Extreme high water stopped all wheels from fishing between 11 and 22 June. Grease Harbour wheels have been out of operation from 11-24 June (FW3 & 4), 26-28 June (FW3), 26-30 June (FW4). FW3 and FW4 were stopped on 20 Sep and FW1 and FW2 were stopped on 30 Sep.

Table B-2. Daily catches, numbers of fish tagged and CPE (adult catch per hour) for sockeye salmon captured in the Nass River fishwheels, 1999.

	Fishwheel 1						Fishwheel 2						Fishwheel 3					Fishwheel 4				
Date	Adults	Cum.	Tagged	Jacks	Cum.	CPE	Adults	Cum.	Tagged	Jacks	Cum.	CPE	Adults	Cum.	Jacks	Cum.	CPE	Adults	Cum.	Jacks	Cum.	CPE
7-Jun	0	0	0	0	0	0.0	0	0	0	0	0		0	0	0	0		2	2	0	0	0.3
8-Jun	5	5	5	0	0	0.2	0	0	0	0	0	0.0	0	0	0	0	0.0	1	3	0	0	0.0
9-Jun	3	8	2	0	0	0.1	6	6	5	0	0	0.3	1	1	0	0	0.0	0	3	0	0	0.0
10-Jun	2	10	1	0	0	0.1	14	20	14	0	0	0.6	0	1	0	0	0.0	1	4	0	0	0.0
11-Jun	0	10	0	0	0	0.0	3	23	3	0	0	0.2	1	2	0	0	0.1	0	4	0	0	0.0
12-Jun	0	10	0	0	0	0.0	0	23	0	0	0	0.0	0	2	0	0	0.0	0	4	0	0	0.0
13 Jun - 21 Jun	0	10	0	0	0		0	23	0	0	0		0	2	0	0		0	4	0	0	
22-Jun	13	23	13	0	0	1.5	29	52	26	0	0	2.9	0	2	0	0		0	4	0	0	
23-Jun	51	74	46	0	0	2.2	74	126	69	0	0	3.3	0	2	0	0		0	4	0	0	
24-Jun	65	139	64	0	0	2.9	244	370	237	1	1	10.0	0	2	0	0		0	4	0	0	
25-Jun	68	207	36	0	0	2.8	312	682	156	1	2	13.9	77	79	0	0	6.8	0	4	0	0	
26-Jun	111	318	56	0	0	4.7	314	996	158	2	4	13.0	0	79	0	0		0	4	0	0	
27-Jun	97	415	57	2	2	4.2	243	1239	113	5	9	9.7	0	79	0	0		0	4	0	0	
28-Jun	93	508	66	0	2	3.8	157	1396	108	3	12	6.6	0	79	0	0		0	4	0	0	
29-Jun	135	643	98	0	2	5.4	155	1551	71	5	17	6.1	36	115	0	0	4.4	0	4	0	0	
30-Jun	143	786	72	0	2	5.8	183	1734	94	6	23	7.4	81	196	0	0	3.3	0	4	0	0	0.0
1-Jul	170	956	86	0	2	7.6	230	1964	115	6	29	10.4	115	31₁	0	0	4.7	15	19	0	0	0.6
2-Jul	270	1226	137	0	2	11.5	254	2218	127	4	33	10.8	88	399	0	0	4.0	65	84	0	0	2.6
3-Jul	368	1594	184	1	3	14.2	303	2521	153	10	43	12.6	286	685	0	0	10.7	327	411	0	0	12.9
4-Jul	221	1815	127	0	3	9.3	279	2800	124	7	50	10.7	260	945	1	1	11.9	236	647	0	0	10.7
5-Jul	188	2003	101	1	4	8.2	222	3022	104	5	55	9.8	134	1079	0	1	5.6	101	748	0	0	4.2
6-Jul	240	2243	120	2	6	9.5	223	3245	143	8	63	8.9	119	1198	0	1	5.4	127	875	0	0	5.4
7-Jul	372	2615	216	6	12	14.9	539	3784	239	15	78	21.7	351	1549	0	1	13.4	493	1368	0	0	19.4
8-Jul	678	3293	299	4	16	27.1	773	4557	432	8	86	33.1	294	1843	0	1	12.4	465	1833	2	2	19.9
9-Jul	608	3901	279	2	18	24.9	653	5210	327	11	97	26.0	316	2159	2	3	13.9	312	2145	3	5	13.9
10-Jul	329	4230	167	2	20	15.0	363	5573	178	15	112	16.6	422	2581	3	6	18.0	451	2596	2	7	18.2
11-Jul	219	4449	84	5	25	9.4	245	5818	149	16	128	11.3	526	3107	5	11	20.7	629	3225	2	9	26.6
12-Jul	227	4676	148	10	35	8.9	370	6188	150	10	138	13.8	318	3425	2	13	14.7	474	3699	3	12	20.0
13-Jul	143	4819	73	6	41	6.4	314	6502	158	6	144	13.1	314	3739	4	17	13.8	339	4038	1	13	14.6
14-Jul	100	4919	76	4	45	4.2	206	6708	80	7	151	9.1	307	4046	3	20	12.3	511	4549	1	14	21.0
15-Jul	144	5063	75	2	47	6.2	338	7046	166	9	160	14.1	255	4301	5	25	11.3	410	4959	4	18	17.4
16-Jul	172	5235	101	4	51	6.7	448	7494	231	12	172	17.5	365	4666	3	28	15.4	333	5292	3	21	14.0
17-Jul	196	5431	100	10	61	8.7	386	7880	194	9	181	17.1	361	5027	5	33	15.1	321	5613	6	27	13.6
18-Jul	83	5514	67	2	63	3.7	197	8077	73	7	188	8.3	422	5449	3	36	18.2	355	5968	8	35	15.0
19-Jul	47	5561	25	2	65	1.9	169	8246	83	8	196	6.9	293	5742	8	44	12.0	262	6230	5	40	11.1
20-Jul	80	5641	63	1	66	3.3	264	8510	134	1	197	10.8	221	5963	7	51	9.3	230	6460	1	41	9.8
21-Jul	124	5765	72	5	71	4.9	381	8891	188	12	209	16.1	231	6194	3	54	9.5	289	6749	6	47	12.0
22-Jul	72	5837	44	2	73	3.3	233	9124	127	3	212	10.5	215	6409	8	62	9.0	193	6942	4	51	8.0
23-Jul	131	5968	74	8	81	4.5	350	9474	161	13	225	12.5	223	6632	7	69	8.6	207	7149	5	56	8.1
24-Jul	94	6062	65	6	87	4.5	231	9705	93	6	231	11.1	220	6852	1	70	9.9	170	7319	4	60	7.6
25-Jul	103	6165	39	18	105	3.8	167	9872	96	4	235	6.1	333	7185	3	73	12.1	384	7703	5	65	14.2

Table B-2. Daily catches, numbers of fish tagged and CPE (adult catch per hour) for sockeye salmon captured in the Nass River fishwheels, 1999.

	Fishwheel 1						Fishwheel 2						Fishwheel 3					Fishwheel 4				
Date	Adults	Cum.	Tagged	Jacks	Cum.	CPE	Adults	Cum.	Tagged	Jacks	Cum.	CPE	Adults	Cum.	Jacks	Cum.	CPE	Adults	Cum.	Jacks	Cum.	CPE
26-Jul	44	6209	30	6	111	2.2	74	9946	28	9	244	3.5	244	7429	11	84	11.9	227	7930	5	70	11.7
27-Jul	36	6245	10	2	113	1.4	79	10025	49	5	249	3.3	123	7552	1	85	5.2	183	8113	9	79	7.4
28-Jul	29	6274	25	3	116	1.2	92	10117	39	9	258	3.9	96	7648	5	90	4.1	69	8182	4	83	2.9
29-Jul	42	6316	15	0	116	1.7	119	10236	65	6	264	5.1	45	7693	7	97	1.9	47	8229	9	92	1.9
30-Jul	38	6354	14	7	123	1.6	100	10336	52	3	267	4.1	152	7845	4	101	6.2	121	8350	8	100	5.1
31-Jul	37	6391	23	11	134	1.5	105	10441	59	11	278	4.4	181	8026	9	110	7.6	203	8553	11	111	8.5
1-Aug	33	6424	27	9	143	1.4	88	10529	47	14	292	3.7	189	8215	14	124	7.9	172	8725	14	125	7.2
2-Aug	25	6449	13	13	156	1.1	93	10622	64	10	302	4.0	93	8308	3	127	3.9	81	8806	10	135	3.4
3-Aug	47	6496	1	21	177	1.9	121	10743	79	9	311	4.7	100	8408	10	137	4.1	98	8904	16	151	4.0
4-Aug	52	6548	1	3	180	2.3	157	10900	117	11	322	7.4	124	8532	9	146	5.1	92	8996	18	169	3.9
5-Aug	99	6647	49	21	201	3.7	299	11199	141	23	345	11.2	64	8596	7	153	2.7	62	9058	12	181	2.7
6-Aug	38	6685	17	5	206	1.7	224	11423	118	30	375	8.8	86	8682	4	157	3.5	56	9114	7	188	2.2
7-Aug	21	6706	17	3	209	1.0	140	11563	66	12	387	6.2	29	8711	5	162	1.3	14	9128	3	191	0.6
8-Aug	25	6731	7	3	212	1.0	214	11777	111	12	399	8.9	32	8743	0	162	1.3	17	9145	0	191	0.7
9-Aug	19	6750	10	7	219	0.7	280	12057	126	31	430	10.5	47	8790	6	168	1.9	8	9153	3	194	0.3
10-Aug	27	6777	13	36	255	1.2	60	12117	41	17	447	3.1	137	8927	10	178	5.7	68	9221	16	210	2.8
11-Aug	13	6790	11	14	269	0.5	114	12231	58	21	468	4.5	139	9066	15	193	5.7	99	9320	24	234	4.0
12-Aug	9	6799	7	13	282	0.4	137	12368	55	35	503	5.8	146	9212	15	208	6.2	131	9451	55	289	5.6
13-Aug	13	6812	8	5	287	0.6	106	12474	59	24	527	4.6	123	9335	29	237	5.1	105	9556	36	325	4.3
14-Aug	7	6819	7	8	295	0.3	105	12579	52	22	549	4.3	125	9460	36	273	5.3	92	9648	53	378	3.9
15-Aug	15	6834	5	13	308	0.6	85	12664	49	18	567	3.5	124	9584	21	294	5.0	72	9720	44	422	2.9
16-Aug	7	6841	0	6	314	0.3	94	12758	57	7	574	3.9	83	9667	18	312	3.5	77	9797	38	460	3.3
17-Aug	4	6845	3	14	328	0.2	59	12817	44	40	614	2.5	64	9731	18	330	2.6	107	9904	39	499	4.4
18-Aug	7	6852	6	5	333	0.3	38	12855	25	7	621	1.6	72	9803	22	352	3.0	86	9990	34	533	3.6
19-Aug	5	6857	0	5	338	0.2	33	12888	10	20	641	1.4	63	9866	21	373	2.6	63	10053	28	561	2.6
20-Aug	16	6873	11	10	348	0.7	38	12926	31	17	658	1.6	85	9951	18	391	3.6	34	10087	29	590	1.4
21-Aug	7	6880	4	9	357	0.3	43	12969	35	13	671	1.8	44	9995	14	405	1.9	42	10129	20	610	1.8
22-Aug	4	6884	4	9	366	0.2	31	13000	26	18	689	1.3	57	10052	15	420	2.4	50	10179	38	648	2.1
23-Aug	9	6893	7	10	376	0.4	20	13020	18	10	699	0.8	34	10086	22	442	1.4	47	10226	21	669	1.9
24-Aug	4	6897	2	3	379	0.2	23	13043	17	8	707	1.0	21	10107	7	449	0.9	20	10246	31	700	0.8
25-Aug	10	6907	8	18	397	0.4	38	13081	34	8	715	1.6	32	10139	12	461	1.4	22	10268	18	718	0.9
26-Aug	16	6923	9	14	411	0.7	51	13132	36	14	729	2.2	39	10178	17	478	1.6	40	10308	42	760	1.7
27-Aug	7	6930	7	9	420	0.3	4	13136	2	5	734	0.2	24	10202	9	487	1.0	29	10337	19	779	1.2
28-Aug	4	6934	2	3	423	0.2	13	13149	10	8	742	0.6	29	10231	11	498	1.2	25	10362	11	790	1.1
29-Aug	11	6945	10	2	425	0.5	18	13167	15	5	747	0.7	14	10245	5	503	0.6	15	10377	7	797	0.7
30-Aug	6	6951	5	1	426	0.2	21	13188	19	9	756	0.9	25	10270	6	509	1.0	13	10390	13	810	0.5
31-Aug	3	6954	3	5	431	0.1	17	13205	13	10	766	0.7	18	10288	11	520	0.8	20	10410	19	829	0.8
1-Sep	2	6956	0	3	434	0.1	9	13214	5	2	768	0.4	12	10300	6	526	1.1	22	10432	31	860	1.0
2-Sep	0	6956	0	4	438	0.0	0	13214	0	0	768	0.0	1	10301	5	531	0.0	23	10455	23	883	1.0
3-Sep	1	6957	1	2	440	0.0	2	13216	2	0	768	0.1	10	10311	8	539	0.4	33	10488	22	905	1.4
4-Sep	2	6959	1	3	443	0.1	3	13219	2	7	775	0.1	11	10322	2	541	0.5	11	10499	4	909	0.5

Table B-2. Daily catches, numbers of fish tagged and CPE (adult catch per hour) for sockeye salmon captured in the Nass River fishwheels, 1999.

	Fishwheel 1						Fishwheel 2						Fishwheel 3					Fishwheel 4				
Date	Adults	Cum.	Tagged	Jacks	Cum.	CPE	Adults	Cum.	Tagged	Jacks	Cum.	CPE	Adults	Cum.	Jacks	Cum.	CPE	Adults	Cum.	Jacks	Cum.	CPE
5-Sep	7	6966	3	8	451	0.3	5	13224	1	1	776	0.2	15	10337	8	549	0.6	24	10523	18	927	1.0
6-Sep	6	6972	5	6	457	0.3	12	13236	10	8	784	0.5	13	10350	6	555	0.5	47	10570	21	948	2.0
7-Sep	10	6982	6	11	468	0.4	10	13246	10	12	796	0.4	26	10376	11	566	1.1	42	10612	31	979	1.7
8-Sep	5	6987	3	9	477	0.2	11	13257	9	17	813	0.5	13	10389	16	582	0.6	28	10640	29	1008	1.2
9-Sep	7	6994	3	13	490	0.3	13	13270	8	11	824	0.5	6	10395	13	595	0.3	25	10665	33	1041	1.0
10-Sep	3	6997	0	11	501	0.1	9	13279	4	8	832	0.4	3	10398	11	606	0.1	33	10698	54	1095	1.4
11-Sep	3	7000	0	5	506	0.1	1	13280	1	6	838	0.0	7	10405	14	620	0.3	13	10711	29	1124	0.5
12-Sep	1	7001	0	1	507	0.0	2	13282	2	8	846	0.1	2	10407	5	625	0.1	9	10720	22	1146	0.4
13-Sep	0	7001	0	1	508	0.0	4	13286	1	6	852	0.2	4	10411	4	629	0.2	7	10727	20	1166	0.3
14-Sep	1	7002	1	3	511	0.0	0	13286	0	0	852	0.0	2	10413	5	634	0.1	10	10737	8	1174	0.4
15-Sep	0	7002	0	4	515	0.0	0	13286	0	0	852	0.0	4	10417	0	634	0.3	10	10747	2	1176	0.4
16-Sep	0	7002	0	3	518	0.0	1	13287	1	2	854	0.0	3	10420	4	638	0.1	2	10749	4	1180	0.1
17-Sep	1	7003	1	1	519	0.0	1	13288	0	2	856	0.0	7	10427	2	640	0.3	16	10765	13	1193	0.6
18-Sep	0	7003	0	2	521	0.0	0	13288	0	1	857	0.0	0	10427	2	642	0.0	9	10774	10	1203	0.4
19-Sep	0	7003	0	1	522	0.0	0	13288	0	0	857	0.0	3	10430	1	643	0.1	8	10782	11	1214	0.3
20-Sep	0	7003	0	0	522	0.0	0	13288	0	0	857	0.0	8	10438	1	644	0.4	6	10788	3	1217	0.3
21-Sep	0	7003	0	1	523	0.0	2	13290	0	2	859	0.1										
22-Sep	4	7007	0	6	529	0.1	7	13297	0	4	863	0.2										
23-Sep	1	7008	0	0	529	0.0	3	13300	0	2	865	0.1										
24-Sep	1	7009	0	0	529	0.0	3	13303	0	0	865	0.1										
25-Sep	1	7010	0	0	529	0.0	0	13303	0	1	866	0.0										
26-Sep	0	7010	0	0	529	0.0	2	13305	0	2	868	0.1										
27-Sep	1	7011	0	0	529	0.1	0	13305	0	0	868	0.0										
28-Sep	0	7011	0	0	529	0.0	0	13305	0	0	868	0.0										
29-Sep	0	7011	0	0	529	0.0	0	13305	0	0	868	0.0										
30-Sep	0	7011	0	0	529	0.0	3	13308	0	0	868	0.1										
Totals	7011		3753	529		2.8	13308		7002	868		5.4	10438		644		5.1	10788		1217		5.2

Note 1: Lower wheels started on 7 June (FW2 at 18:50 hr and FW1 at 10:15 hr) and Upper wheels started on 7 June (FW4 at 12:00 hr) and 8 June (FW3 at 14:00).

Note 2: Shading represents non-operation of fishwheels. Extreme high water stopped all wheels from fishing between 11 and 22 June. Grease Harbour wheels have been out of operation from 11-24 June (FW3 & 4), 26-28 June (FW3), 26-30 June (FW4). FW3 and FW4 were stopped on 20 Sep and FW1 and FW2 were stopped on 30 Sep.

Table B-3. The number of sockeye harvested during the ESSR fishery, 23 July to 25 August 1999.

	Gitwinksilhkw fishwheels			Grease Harbour fishwheels				
Date	1	2	Total	3	4	Total	Total	Cum.
23-Jul			0	146	136	282	282	282
24-Jul	73	84	157	185	148	333	490	772
25-Jul	150	150	300	219	146	365	665	1437
26-Jul	95		95		296	296	391	1828
27-Jul		43	43	304		304	347	2175
28-Jul			0	106		106	106	2281
29-Jul		117	117		117	117	234	2515
30-Jul		65	65		198	198	263	2778
31-Jul		44	44		498	498	542	3320
1-Aug			0		361	361	361	3681
2-Aug			0	61	108	169	169	3850
3-Aug			0	178	88	266	266	4116
4-Aug			0		161	161	161	4277
5-Aug	228		228	90		90	318	4595
6-Aug		110	110	92		92	202	4797
7-Aug		122	122		72	72	194	4991
8-Aug			0			0	0	4991
9-Aug		174	174		62	62	236	5227
10-Aug	103		103	146		146	249	5476
11-Aug			0	180		180	180	5656
12-Aug			0	306		306	306	5962
13-Aug		139	139	214		214	353	6315
14-Aug			0		167	167	167	6482
15-Aug			0		155	155	155	6637
16-Aug		117	117	86	78	164	281	6918
17-Aug			0	70	101	171	171	7089
18-Aug			0	66	82	148	148	7237
19-Aug			0	45	41	86	86	7323
20-Aug			0	57	55	112	112	7435
21-Aug	44		44	62	46	108	152	7587
22-Aug			0		101	101	101	7688
23-Aug			0		68	68	68	7756
24-Aug			0		47	47	47	7803
25-Aug			0		55	55	55	7858
Total	693	1165	1858	2613	3387	6000	7858	

Table B-4. Daily catches, numbers of fish tagged and CPE (adult catch per hour) for coho salmon captured in the Nass River fishwheels, 1999.

	Fishwheel 1						Fishwheel 2						Fishwheel 3						Fishwheel 4					
Date	Adults	Cum.	Tagged	Jacks	Cum.	CPE	Adults	Cum.	Tagged	Jacks	Cum.	CPE	Adults	Cum.	Tagged	Jacks	Cum.	CPE	Adults	Cum.	Tagged	Jacks	Cum.	CPE
23-Jul	2	2	2	0	0	0.07	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
24-Jul	0	2	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0.00
25-Jul	5	7	4	0	0	0.18	1	1	1	0	0	0.04	0	0	0	0	0	0.00	0	0	0	2	2	0.00
26-Jul	1	8	1	0	0	0.05	0	1	0	0	0	0.00	1	1	0	0	0	0.05	0	0	0	1	3	0.00
27-Jul	3	11	3	0	0	0.12	3	4	1	0	0	0.13	1	2	0	0	0	0.04	0	0	0	0	3	0.00
28-Jul	2	13	2	0	0	0.09	2	6	2	0	0	0.09	0	2	0	0	0	0.00	0	0	0	0	3	0.00
29-Jul	0	13	0	0	0	0.00	2	8	2	0	0	0.09	0	2	0	1	1	0.00	0	0	0	2	5	0.00
30-Jul	7	20	7	2	2	0.29	6	14	6	0	0	0.25	0	2	0	0	1	0.00	3	3	3	0	5	0.13
31-Jul	28	48	28	0	2	1.16	18	32	18	0	0	0.75	0	2	0	3	4	0.00	0	3	0	3	8	0.00
1-Aug	28	76	28	5	7	1.15	24	56	24	5	5	1.01	3	5	0	4	8	0.13	6	9	1	3	11	0.25
2-Aug	27	103	25	3	10	1.16	20	76	18	0	5	0.87	3	8	3	2	10	0.13	3	12	3	3	14	0.13
3-Aug	37	140	33	3	13	1.48	37	113	32	1	6	1.43	14	22	13	1	11	0.57	19	31	17	17	31	0.77
4-Aug	24	164	23	0	13	1.08	16	129	15	1	7	0.75	6	28	6	10	21	0.25	10	41	10	10	41	0.42
5-Aug	35	199	35	3	16	1.31	28	157	25	2	9	1.05	0	28	0	1	22	0.00	9	50	7	0	41	0.39
6-Aug	13	212	13	1	17	0.58	17	174	16	1	10	0.67	5	33	5	1	23	0.20	12	62	12	5	46	0.48
7-Aug	9	221	8	2	19	0.42	38	212	36	3	13	1.70	1	34	1	1	24	0.04	1	63	1	2	48	0.04
8-Aug	12	233	11	0	19	0.49	41	253	38	3	16	1.70	0	34	0	0	24	0.00	0	63	0	0	48	0.00
9-Aug	38	271	34	5	24	1.46	60	313	57	3	19	2.24	10	44	7	2	26	0.41	6	69	5	5	53	0.26
10-Aug	70	341	64	10	34	3.12	17	330	11	2	21	0.87	14	58	12	2	28	0.59	35	104	32	12	65	1.46
11-Aug	47	388	39	0	34	1.86	52	382	51	3	24	2.03	20	78	18	6	34	0.82	38	142	34	15	80	1.54
12-Aug	50	438	42	12	46	2.06	110	492	99	12	36	4.65	8	86	7	7	41	0.34	35	177	31	14	94	1.49
13-Aug	27	465	23	0	46	1.17	58	550	58	3	39	2.51	18	104	15	5	46	0.75	36	213	30	8	102	1.48
14-Aug	28	493	28	1	47	1.17	50	600	50	4	43	2.07	11	115	8	5	51	0.46	50	263	38	10	112	2.11
15-Aug	26	519	25	6	53	1.06	35	635	32	3	46	1.44	31	146	21	5	56	1.25	46	309	27	10	122	1.87
16-Aug	39	558	39	0	53	1.65	51	686	50	1	47	2.13	13	159	10	3	59	0.55	18	327	13	6	128	0.76
17-Aug	22	580	18	1	54	0.95	55	741	48	5	52	2.33	27	186	19	8	67	1.12	35	362	24	7	135	1.45
18-Aug	36	616	33	3	57	1.50	56	797	52	2	54	2.32	36	222	24	6	73	1.51	45	407	25	9	144	1.88
19-Aug	23	639	23	2	59	0.96	42	839	36	2	56	1.76	20	242	13	2	75	0.82	28	435	22	1	145	1.16
20-Aug	42	681	36	0	59	1.75	35	874	33	0	56	1.45	10	252	5	4	79	0.42	36	471	16	8	153	1.52
21-Aug	29	710	25	2	61	1.18	51	925	43	1	57	2.08	35	287	16	5	84	1.49	49	520	37	5	158	2.07
22-Aug	34	744	16	3	64	1.46	35	960	31	4	61	1.48	17	304	10	3	87	0.71	37	557	29	10	168	1.56
23-Aug	84	828	64	3	67	3.45	65	1025	52	3	64	2.71	22	326	9	2	89	0.91	41	598	24	13	181	1.69
24-Aug	48	876	45	5	72	2.07	45	1070	38	0	64	1.93	30	356	17	1	90	1.22	68	666	46	3	184	2.74
25-Aug	70	946	65	4	76	2.84	53	1123	49	2	66	2.18	30	386	11	0	90	1.31	58	724	38	8	192	2.49
26-Aug	63	1009	57	4	80	2.70	52	1175	49	4	70	2.21	69	455	16	1	91	2.78	92	816	28	2	194	3.87
27-Aug	98	1107	73	3	83	4.01	20	1195	12	3	73	1.20	29	484	12	2	93	1.24	52	868	39	3	197	2.22
28-Aug	21	1128	16	1	84	0.89	32	1227	27	4	77	1.35	23	507	15	2	95	0.96	39	907	15	5	202	1.65
29-Aug	62	1190	52	1	85	2.63	45	1272	38	1	78	1.75	17	524	15	1	96	0.73	22	929	18	5	207	0.95
30-Aug	69	1259	62	2	87	2.82	80	1352	72	6	84	3.48	58	582	29	2	98	2.31	58	987	39	3	210	2.35
31-Aug	46	1305	26	0	87	2.00	102	1454	61	4	88	4.38	62	644	24	1	99	2.63	113	1100	54	5	215	4.72

Table B-4. Daily catches, numbers of fish tagged and CPE (adult catch per hour) for coho salmon captured in the Nass River fishwheels, 1999.

	Fishwheel 1						Fishwheel 2						Fishwheel 3						Fishwheel 4					
Date	Adults	Cum.	Tagged	Jacks	Cum.	CPE	Adults	Cum.	Tagged	Jacks	Cum.	CPE	Adults	Cum.	Tagged	Jacks	Cum.	CPE	Adults	Cum.	Tagged	Jacks	Cum.	CPE
1-Sep	11	1316	5	12	99	0.44	62	1516	16	0	88	2.51	22	666	8	2	101	1.93	62	1162	27	2	217	2.68
2-Sep	28	1344	12	1	100	1.23	7	1523	6	3	91	0.56	16	682	5	1	102	0.65	104	1266	27	5	222	4.48
3-Sep	14	1358	14	1	101	0.59	6	1529	4	1	92	0.25	14	696	1	4	106	0.60	47	1313	16	2	224	2.03
4-Sep	24	1382	23	0	101	1.10	10	1539	8	0	92	0.46	19	715	17	2	108	0.82	40	1353	17	0	224	1.70
5-Sep	23	1405	21	2	103	0.95	14	1553	9	3	95	0.58	15	730	6	2	110	0.63	43	1396	13	5	229	1.80
6-Sep	35	1440	32	1	104	1.47	18	1571	15	0	95	0.75	12	742	1	5	115	0.50	39	1435	13	3	232	1.63
7-Sep	31	1471	6	2	106	1.27	16	1587	6	2	97	0.66	5	747	3	0	115	0.21	48	1483	9	0	232	1.99
8-Sep	12	1483	5	0	106	0.51	17	1604	10	1	98	0.72	12	759	2	0	115	0.51	23	1506	7	0	232	0.97
9-Sep	36	1519	7	1	107	1.49	13	1617	9	0	98	0.54	17	776	6	0	115	0.71	62	1568	15	0	232	2.59
10-Sep	50	1569	13	2	109	2.07	16	1633	4	5	103	0.66	18	794	7	0	115	0.74	73	1641	16	1	233	3.02
11-Sep	40	1609	10	0	109	1.68	29	1662	8	1	104	1.22	11	805	1	0	115	0.47	51	1692	14	1	234	2.13
12-Sep	22	1631	6	0	109	0.91	26	1688	7	1	105	1.09	10	815	2	1	116	0.42	40	1732	10	0	234	1.68
13-Sep	15	1646	3	2	111	0.83	21	1709	6	3	108	1.15	11	826	5	0	116	0.45	36	1768	8	0	234	1.44
14-Sep	11	1657	2	1	112	0.37	6	1715	3	2	110	0.46	7	833	2	0	116	0.30	12	1780	2	4	238	0.52
15-Sep	10	1667	3	0	112	0.42	9	1724	3	0	110	0.38	1	834	0	0	116	0.06	19	1799	5	0	238	0.80
16-Sep	25	1692	5	0	112	1.05	10	1734	3	0	110	0.41	2	836	1	0	116	0.08	13	1812	4	0	238	0.55
17-Sep	15	1707	4	2	114	0.63	3	1737	1	2	112	0.13	6	842	2	2	118	0.26	14	1826	4	1	239	0.57
18-Sep	9	1716	2	3	117	0.38	8	1745	3	0	112	0.34	2	844	1	0	118	0.08	15	1841	3	1	240	0.64
19-Sep	12	1728	3	0	117	0.50	3	1748	1	0	112	0.12	3	847	2	0	118	0.13	7	1848	2	0	240	0.29
20-Sep	3	1731	0	0	117	0.16	1	1749	1	1	113	0.05	4	851	1	0	118	0.21	11	1859	3	1	241	0.58
21-Sep	11	1742	4	1	118	0.46	9	1758	3	3	116	0.37												
22-Sep	7	1749	0	6	124	0.21	18	1776	6	6	122	0.54												
23-Sep	1	1750	0	1	125	0.04	7	1783	1	1	123	0.30												
24-Sep	3	1753	2	0	125	0.13	24	1807	6	1	124	1.02												
25-Sep	20	1773	4	1	126	0.87	37	1844	8	1	125	1.68												
26-Sep	23	1796	6	2	128	0.99	16	1860	4	3	128	0.67												
27-Sep	4	1800	0	0	128	0.22	1	1861	0	1	129	0.05												
28-Sep	2	1802	0	0	128	0.17	2	1863	0	0	129	0.08												
29-Sep	0	1802	0	0	128	0.00	5	1868	0	0	129	0.20												
30-Sep	0	1802	0	0	128	0.00	13	1881	0	0	129	0.44												
Totals	1802		1320	128		1.08	1881		1434	129		1.15	851		434	118		0.60	1859		933	241		1.30

Note 1: Lower wheels started on 7 June (FW2 at 18:50 hr and FW1 at 10:15 hr) and Upper wheels started on 7 June (FW4 at 12:00 hr) and 8 June (FW3 at 14:00).

Note 2: Shading represents non-operation of fishwheels. Extreme high water stopped all wheels from fishing between 11 and 22 June. Grease Harbour wheels have been out of operation from 11-24 June (FW3 & 4), 26-28 June (FW3), 26-30 June (FW4). FW3 and FW4 were stopped on 20 Sep and FW1 and FW2 were stopped on 30 Sep.

Table B-5. Daily catches, numbers of fish tagged and CPE (adult catch per hour) for steelhead captured in the Nass River fishwheels, 1999.

	Fishwheel 1					Fishwheel 2					Fishwheel 3					Fishwheel 4					
Date	Adults	Cum.	Tagged	Cum.	CPE	Adults	Cum.	Tagged	Cum.	CPE	Adults	Cum.	Tagged	Cum.	CPE	Adults	Cum.	Tagged	Cum.	CPE	Total
7-Jun	1	1	0	0	0.11	0	0	0	0		0	0	0	0		0	0	0	0	0.00	1
8-Jun	0	1	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0
9-Jun	0	1	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0
10-Jun	0	1	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0
11-Jun	0	1	0	0	0.00	1	1	0	0	0.06	0	0	0	0	0.00	0	0	0	0	0.00	1
12-Jun	0	1	0	0	0.00	0	1	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0
13 Jun - 21 Jun	0	1	0	0		0	1	0	0		0	0	0	0		0	0	0	0		0
22-Jun	0	1	0	0	0.00	0	1	0	0	0.00	0	0	0	0		0	0	0	0		0
23-Jun	0	1	0	0	0.00	0	1	0	0	0.00	0	0	0	0		0	0	0	0		0
24-Jun	0	1	0	0	0.00	0	1	0	0	0.00	0	0	0	0		0	0	0	0		0
25-Jun	0	1	0	0	0.00	0	1	0	0	0.00	0	0	0	0	0.00	0	0	0	0		0
26-Jun	0	1	0	0	0.00	0	1	0	0	0.00	0	0	0	0		0	0	0	0		0
27-Jun	0	1	0	0	0.00	0	1	0	0	0.00	0	0	0	0		0	0	0	0		0
28-Jun	0	1	0	0	0.00	0	1	0	0	0.00	0	0	0	0		0	0	0	0		0
29-Jun	0	1	0	0	0.00	0	1	0	0	0.00	0	0	0	0	0.00	0	0	0	0		0
30-Jun	0	1	0	0	0.00	0	1	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0
1-Jul	0	1	0	0	0.00	0	1	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0
2-Jul	0	1	0	0	0.00	0	1	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0
3-Jul	0	1	0	0	0.00	0	1	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0
4-Jul	0	1	0	0	0.00	0	1	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0
5-Jul	0	1	0	0	0.00	0	1	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0
6-Jul	0	1	0	0	0.00	0	1	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0
7-Jul	0	1	0	0	0.00	0	1	0	0	0.00	1	1	1	1	0.04	0	0	0	0	0.00	1
8-Jul	0	1	0	0	0.00	0	1	0	0	0.00	0	1	0	1	0.00	0	0	0	0	0.00	0
9-Jul	0	1	0	0	0.00	0	1	0	0	0.00	0	1	0	1	0.00	0	0	0	0	0.00	0
10-Jul	0	1	0	0	0.00	0	1	0	0	0.00	0	1	0	1	0.00	0	0	0	0	0.00	0
11-Jul	0	1	0	0	0.00	1	2	0	0	0.05	0	1	0	1	0.00	0	0	0	0	0.00	1
12-Jul	0	1	0	0	0.00	0	2	0	0	0.00	0	1	0	1	0.00	0	0	0	0	0.00	0
13-Jul	0	1	0	0	0.00	0	2	0	0	0.00	0	1	0	1	0.00	0	0	0	0	0.00	0
14-Jul	0	1	0	0	0.00	0	2	0	0	0.00	0	1	0	1	0.00	1	1	0	0	0.04	1
15-Jul	0	1	0	0	0.00	0	2	0	0	0.00	0	1	0	1	0.00	0	1	0	0	0.00	0
16-Jul	0	1	0	0	0.00	0	2	0	0	0.00	0	1	0	1	0.00	0	1	0	0	0.00	0
17-Jul	0	1	0	0	0.00	0	2	0	0	0.00	0	1	0	1	0.00	0	1	0	0	0.00	0
18-Jul	0	1	0	0	0.00	0	2	0	0	0.00	0	1	0	1	0.00	0	1	0	0	0.00	0
19-Jul	0	1	0	0	0.00	0	2	0	0	0.00	1	2	0	1	0.04	0	1	0	0	0.00	1
20-Jul	0	1	0	0	0.00	0	2	0	0	0.00	0	2	0	1	0.00	0	1	0	0	0.00	0
21-Jul	0	1	0	0	0.00	0	2	0	0	0.00	0	2	0	1	0.00	0	1	0	0	0.00	0
22-Jul	0	1	0	0	0.00	1	3	1	1	0.05	0	2	0	1	0.00	0	1	0	0	0.00	1
23-Jul	0	1	0	0	0.00	0	3	0	1	0.00	0	2	0	1	0.00	0	1	0	0	0.00	0
24-Jul	0	1	0	0	0.00	0	3	0	1	0.00	0	2	0	1	0.00	0	1	0	0	0.00	0
25-Jul	0	1	0	0	0.00	1	4	0	1	0.04	0	2	0	1	0.00	0	1	0	0	0.00	1
26-Jul	0	1	0	0	0.00	0	4	0	1	0.00	0	2	0	1	0.00	0	1	0	0	0.00	0

Table B-5. Daily catches, numbers of fish tagged and CPE (adult catch per hour) for steelhead captured in the Nass River fishwheels, 1999.

	Fishwheel 1					Fishwheel 2					Fishwheel 3					Fishwheel 4					
Date	Adults	Cum.	Tagged	Cum.	CPE	Adults	Cum.	Tagged	Cum.	CPE	Adults	Cum.	Tagged	Cum.	CPE	Adults	Cum.	Tagged	Cum.	CPE	Total
27-Jul	0	1	0	0	0.00	2	6	1	2	0.08	0	2	0	1	0.00	1	2	1	1	0.04	3
28-Jul	0	1	0	0	0.00	1	7	1	3	0.04	0	2	0	1	0.00	1	3	1	2	0.04	2
29-Jul	0	1	0	0	0.00	0	7	0	3	0.00	0	2	0	1	0.00	0	3	0	2	0.00	0
30-Jul	1	2	1	1	0.04	1	8	1	4	0.04	0	2	0	1	0.00	0	3	0	2	0.00	2
31-Jul	0	2	0	1	0.00	3	11	2	6	0.12	1	3	0	1	0.04	1	4	0	2	0.04	5
1-Aug	0	2	0	1	0.00	1	12	1	7	0.04	1	4	0	1	0.04	1	5	0	2	0.04	3
2-Aug	1	3	1	2	0.04	0	12	0	7	0.00	0	4	0	1	0.00	0	5	0	2	0.00	1
3-Aug	1	4	1	3	0.04	2	14	2	9	0.08	1	5	1	2	0.04	0	5	0	2	0.00	4
4-Aug	0	4	0	3	0.00	1	15	1	10	0.05	1	6	0	2	0.04	2	7	2	4	0.08	4
5-Aug	0	4	0	3	0.00	2	17	2	12	0.07	0	6	0	2	0.00	0	7	0	4	0.00	2
6-Aug	0	4	0	3	0.00	1	18	1	13	0.04	0	6	0	2	0.00	0	7	0	4	0.00	1
7-Aug	0	4	0	3	0.00	0	18	0	13	0.00	0	6	0	2	0.00	0	7	0	4	0.00	0
8-Aug	0	4	0	3	0.00	0	18	0	13	0.00	0	6	0	2	0.00	0	7	0	4	0.00	0
9-Aug	2	6	2	5	0.08	3	21	3	16	0.11	1	7	0	2	0.04	0	7	0	4	0.00	6
10-Aug	2	8	2	7	0.09	1	22	1	17	0.05	0	7	0	2	0.00	1	8	1	5	0.04	4
11-Aug	0	8	0	7	0.00	6	28	6	23	0.23	0	7	0	2	0.00	0	8	0	5	0.00	6
12-Aug	3	11	3	10	0.12	5	33	5	28	0.21	5	12	2	4	0.21	2	10	2	7	0.08	15
13-Aug	0	11	0	10	0.00	7	40	5	33	0.30	1	13	1	5	0.04	1	11	1	8	0.04	9
14-Aug	2	13	2	12	0.08	5	45	5	38	0.21	0	13	0	5	0.00	0	11	0	8	0.00	7
15-Aug	1	14	1	13	0.04	9	54	8	46	0.37	3	16	1	6	0.12	0	11	0	8	0.00	13
16-Aug	2	16	2	15	0.08	12	66	12	58	0.50	3	19	3	9	0.13	1	12	1	9	0.04	18
17-Aug	0	16	0	15	0.00	11	77	11	69	0.47	5	24	5	14	0.21	6	18	5	14	0.25	22
18-Aug	0	16	0	15	0.00	6	83	6	75	0.25	3	27	3	17	0.13	2	20	2	16	0.08	11
19-Aug	1	17	1	16	0.04	3	86	3	78	0.13	4	31	3	20	0.16	4	24	3	19	0.17	12
20-Aug	1	18	1	17	0.04	9	95	9	87	0.37	6	37	5	25	0.25	2	26	2	21	0.08	18
21-Aug	1	19	1	18	0.04	5	100	5	92	0.20	1	38	1	26	0.04	2	28	2	23	0.08	9
22-Aug	0	19	0	18	0.00	11	111	10	102	0.47	5	43	5	31	0.21	3	31	2	25	0.13	19
23-Aug	1	20	1	19	0.04	6	117	6	108	0.25	5	48	5	36	0.21	4	35	4	29	0.17	16
24-Aug	1	21	1	20	0.04	9	126	8	116	0.39	0	48	0	36	0.00	2	37	2	31	0.08	12
25-Aug	0	21	0	20	0.00	4	130	4	120	0.16	2	50	2	38	0.09	1	38	1	32	0.04	7
26-Aug	1	22	0	20	0.04	9	139	9	129	0.38	3	53	3	41	0.12	4	42	4	36	0.17	17
27-Aug	0	22	0	20	0.00	2	141	2	131	0.12	6	59	6	47	0.26	9	51	8	44	0.38	17
28-Aug	1	23	0	20	0.04	3	144	3	134	0.13	4	63	4	51	0.17	1	52	1	45	0.04	9
29-Aug	2	25	2	22	0.08	14	158	13	147	0.54	1	64	1	52	0.04	0	52	0	45	0.00	17
30-Aug	2	27	2	24	0.08	13	171	12	159	0.56	4	68	4	56	0.16	2	54	1	46	0.08	21
31-Aug	2	29	2	26	0.09	10	181	10	169	0.43	9	77	9	65	0.38	6	60	6	52	0.25	27
1-Sep	3	32	3	29	0.12	7	188	6	175	0.28	1	78	1	66	0.09	5	65	5	57	0.22	16
2-Sep	1	33	1	30	0.04	0	188	0	175	0.00	0	78	0	66	0.00	15	80	12	69	0.65	16
3-Sep	3	36	2	32	0.13	0	188	0	175	0.00	2	80	2	68	0.09	7	87	7	76	0.30	12
4-Sep	1	37	1	33	0.05	4	192	4	179	0.18	1	81	0	68	0.04	4	91	4	80	0.17	10
5-Sep	1	38	1	34	0.04	2	194	2	181	0.08	5	86	5	73	0.21	8	99	6	86	0.33	16
6-Sep	0	38	0	34	0.00	11	205	10	191	0.46	4	90	3	76	0.17	15	114	13	99	0.63	30

Table B-5. Daily catches, numbers of fish tagged and CPE (adult catch per hour) for steelhead captured in the Nass River fishwheels, 1999.

	Fishwheel 1					Fishwheel 2					Fishwheel 3					Fishwheel 4					
Date	Adults	Cum.	Tagged	Cum.	CPE	Adults	Cum.	Tagged	Cum.	CPE	Adults	Cum.	Tagged	Cum.	CPE	Adults	Cum.	Tagged	Cum.	CPE	Total
7-Sep	2	40	2	36	0.08	13	218	13	204	0.53	1	91	1	77	0.04	5	119	5	104	0.21	21
8-Sep	1	41	1	37	0.04	5	223	5	209	0.21	1	92	1	78	0.04	11	130	10	114	0.46	18
9-Sep	2	43	1	38	0.08	5	228	5	214	0.21	0	92	0	78	0.00	5	135	5	119	0.21	12
10-Sep	2	45	1	39	0.08	8	236	7	221	0.33	0	92	0	78	0.00	7	142	5	124	0.29	17
11-Sep	1	46	1	40	0.04	7	243	6	227	0.29	2	94	2	80	0.09	10	152	7	131	0.42	20
12-Sep	1	47	1	41	0.04	7	250	6	233	0.29	4	98	3	83	0.17	13	165	10	141	0.55	25
13-Sep	0	47	0	41	0.00	3	253	3	236	0.16	2	100	2	85	0.08	9	174	9	150	0.36	14
14-Sep	2	49	2	43	0.07	0	253	0	236	0.00	2	102	2	87	0.09	8	182	7	157	0.35	12
15-Sep	1	50	1	44	0.04	2	255	2	238	0.08	2	104	2	89	0.13	3	185	3	160	0.13	8
16-Sep	0	50	0	44	0.00	2	257	2	240	0.08	0	104	0	89	0.00	4	189	2	162	0.17	6
17-Sep	0	50	0	44	0.00	2	259	2	242	0.08	0	104	0	89	0.00	0	189	0	162	0.00	2
18-Sep	0	50	0	44	0.00	2	261	2	244	0.08	4	108	3	92	0.16	5	194	5	167	0.21	11
19-Sep	2	52	2	46	0.08	0	261	0	244	0.00	0	108	0	92	0.00	3	197	3	170	0.12	5
20-Sep	1	53	0	46	0.05	0	261	0	244	0.00	2	110	1	93	0.10	2	199	2	172	0.11	5
21-Sep	0	53	0	46	0.00	2	263	2	246	0.08											2
22-Sep	2	55	2	48	0.06	5	268	4	250	0.15											7
23-Sep	0	55	0	48	0.00	2	270	2	252	0.08											2
24-Sep	0	55	0	48	0.00	0	270	0	252	0.00											0
25-Sep	0	55	0	48	0.00	1	271	1	253	0.05											1
26-Sep	1	56	1	49	0.04	1	272	1	254	0.04											2
27-Sep	0	56	0	49	0.00	2	274	2	256	0.11											2
28-Sep	0	56	0	49	0.00	0	274	0	256	0.00											0
29-Sep	0	56	0	49	0.00	0	274	0	256	0.00											0
30-Sep	0	56	0	49	0.00	2	276	1	257	0.07											2
Totals[a]	56		49		0.02	276		257		0.11	110		93		0.05	199		172		0.10	641
Totals[b]	55		49		0.02	275		257		0.11	110		93		0.05	199		172		0.10	639

[a] Total from 7 June to 30 September.

[b] Total from 1 July to 30 September (excludes winter-run fish and kelts).

Note 1: Lower wheels started on 7 June (FW2 at 18:50 hr and FW1 at 10:15 hr) and Upper wheels started on 7 June (FW4 at 12:00 hr) and 8 June (FW3 at 14:00).

Note 2: Shading represents non-operation of fishwheels. Extreme high water stopped all wheels from fishing between 11 and 22 June. Grease Harbour wheels have been out of operation from 11-24 June (FW3 & 4), 26-28 June (FW3), 26-30 June (FW4). FW3 and FW4 were stopped on 20 Sep and FW1 and FW2 were stopped on 30 Sep.

Table B-6. Daily catches of pink and chum salmon at the Nass River fishwheels, 1999.

	Pink										Chum									
Date	FW1	Cum.	FW2	Cum.	Fw3	Cum.	Fw4	Cum.	Total	Cum.	FW1	Cum.	FW2	Cum.	FW3	Cum.	FW4	Cum.	Total	Cum.
7-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Jun - 21 Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9-Jul	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
10-Jul	1	2	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0
11-Jul	3	5	1	1	0	0	0	0	4	6	0	0	0	0	0	0	0	0	0	0
12-Jul	0	5	1	2	0	0	0	0	1	7	0	0	0	0	0	0	0	0	0	0
13-Jul	2	7	1	3	0	0	0	0	3	10	0	0	0	0	0	0	0	0	0	0
14-Jul	9	16	4	7	0	0	0	0	13	23	0	0	0	0	0	0	0	0	0	0
15-Jul	4	20	7	14	0	0	0	0	11	34	0	0	0	0	0	0	0	0	0	0
16-Jul	5	25	1	15	0	0	0	0	6	40	0	0	0	0	0	0	0	0	0	0
17-Jul	12	37	3	18	0	0	0	0	15	55	1	1	0	0	0	0	0	0	1	1
18-Jul	13	50	9	27	0	0	0	0	22	77	0	1	0	0	0	0	0	0	0	1
19-Jul	9	59	6	33	0	0	1	1	16	93	1	2	0	0	0	0	0	0	1	2
20-Jul	4	63	9	42	0	0	0	1	13	106	0	2	0	0	0	0	0	0	0	2
21-Jul	22	85	10	52	1	1	2	3	35	141	0	2	0	0	0	0	0	0	0	2
22-Jul	16	101	11	63	0	1	0	3	27	168	0	2	0	0	0	0	0	0	0	2

Table B-6. Daily catches of pink and chum salmon at the Nass River fishwheels, 1999.

	Pink										Chum									
Date	FW1	Cum.	FW2	Cum.	Fw3	Cum.	Fw4	Cum.	Total	Cum.	FW1	Cum.	FW2	Cum.	FW3	Cum.	FW4	Cum.	Total	Cum.
23-Jul	43	144	20	83	1	2	1	4	65	233	0	2	0	0	0	0	0	0	0	2
24-Jul	29	173	21	104	2	4	0	4	52	285	0	2	0	0	1	1	0	0	1	3
25-Jul	100	273	45	149	2	6	3	7	150	435	0	2	0	0	0	1	0	0	0	3
26-Jul	86	359	26	175	10	16	4	11	126	561	0	2	1	1	0	1	0	0	1	4
27-Jul	127	486	42	217	3	19	4	15	176	737	0	2	0	1	0	1	0	0	0	4
28-Jul	37	523	33	250	2	21	3	18	75	812	0	2	0	1	0	1	0	0	0	4
29-Jul	14	537	27	277	5	26	1	19	47	859	0	2	0	1	0	1	0	0	0	4
30-Jul	42	579	83	360	2	28	6	25	133	992	0	2	1	2	0	1	1	1	2	6
31-Jul	156	735	184	544	4	32	5	30	349	1341	1	3	0	2	0	1	0	1	1	7
1-Aug	335	1070	295	839	32	64	14	44	676	2017	1	4	0	2	0	1	0	1	1	8
2-Aug	390	1460	359	1198	28	92	6	50	783	2800	1	5	2	4	0	1	0	1	3	11
3-Aug	361	1821	285	1483	37	129	20	70	703	3503	0	5	0	4	0	1	0	1	0	11
4-Aug	209	2030	164	1647	23	152	11	81	407	3910	0	5	0	4	1	2	0	1	1	12
5-Aug	156	2186	110	1757	18	170	10	91	294	4204	1	6	0	4	0	2	0	1	1	13
6-Aug	55	2241	60	1817	13	183	13	104	141	4345	0	6	1	5	0	2	0	1	1	14
7-Aug	17	2258	26	1843	4	187	3	107	50	4395	0	6	0	5	0	2	0	1	0	14
8-Aug	19	2277	52	1895	0	187	0	107	71	4466	0	6	0	5	0	2	0	1	0	14
9-Aug	84	2361	124	2019	5	192	1	108	214	4680	0	6	0	5	1	3	0	1	1	15
10-Aug	100	2461	114	2133	14	206	8	116	236	4916	0	6	0	5	0	3	0	1	0	15
11-Aug	219	2680	271	2404	16	222	11	127	517	5433	0	6	1	6	1	4	0	1	2	17
12-Aug	685	3365	610	3014	12	234	19	146	1326	6759	0	6	0	6	0	4	0	1	0	17
13-Aug	392	3757	646	3660	48	282	54	200	1140	7899	0	6	0	6	1	5	0	1	1	18
14-Aug	310	4067	368	4028	52	334	37	237	767	8666	1	7	0	6	1	6	0	1	2	20
15-Aug	321	4388	294	4322	73	407	88	325	776	9442	0	7	1	7	1	7	0	1	2	22
16-Aug	286	4674	338	4660	56	463	75	400	755	10197	3	10	1	8	1	8	0	1	5	27
17-Aug	282	4956	299	4959	47	510	113	513	741	10938	0	10	0	8	1	9	0	1	1	28
18-Aug	212	5168	266	5225	86	596	106	619	670	11608	0	10	0	8	1	10	0	1	1	29
19-Aug	246	5414	259	5484	47	643	50	669	602	12210	0	10	0	8	0	10	0	1	0	29
20-Aug	285	5699	303	5787	41	684	55	724	684	12894	2	12	1	9	0	10	0	1	3	32
21-Aug	229	5928	191	5978	33	717	55	779	508	13402	1	13	1	10	1	11	0	1	3	35
22-Aug	193	6121	226	6204	31	748	78	857	528	13930	1	14	0	10	1	12	0	1	2	37
23-Aug	325	6446	249	6453	66	814	57	914	697	14627	0	14	1	11	2	14	1	2	4	41
24-Aug	131	6577	102	6555	43	857	36	950	312	14939	1	15	1	12	0	14	0	2	2	43
25-Aug	127	6704	154	6709	81	938	69	1019	431	15370	0	15	1	13	0	14	0	2	1	44
26-Aug	161	6865	205	6914	67	1005	90	1109	523	15893	0	15	1	14	6	20	0	2	7	51
27-Aug	212	7077	210	7124	46	1051	72	1181	540	16433	1	16	1	15	2	22	0	2	4	55
28-Aug	167	7244	204	7328	21	1072	27	1208	419	16852	1	17	1	16	1	23	0	2	3	58

Table B-6. Daily catches of pink and chum salmon at the Nass River fishwheels, 1999.

	Pink										Chum									
Date	FW1	Cum.	FW2	Cum.	Fw3	Cum.	Fw4	Cum.	Total	Cum.	FW1	Cum.	FW2	Cum.	FW3	Cum.	FW4	Cum.	Total	Cum.
29-Aug	64	7308	136	7464	3	1075	14	1222	217	17069	1	18	2	18	0	23	0	2	3	61
30-Aug	40	7348	93	7557	13	1088	16	1238	162	17231	0	18	0	18	1	24	0	2	1	62
31-Aug	61	7409	127	7684	30	1118	56	1294	274	17505	0	18	1	19	0	24	1	3	2	64
1-Sep	55	7464	129	7813	15	1133	73	1367	272	17777	0	18	2	21	1	25	1	4	4	68
2-Sep	66	7532	38	7851	2	1135	68	1435	176	17953	0	18	0	21	0	25	2	6	2	70
3-Sep	58	7590	70	7921	23	1158	69	1504	220	18173	0	18	0	21	0	25	0	6	0	70
4-Sep	48	7638	32	7953	19	1177	47	1551	146	18319	0	18	0	21	0	25	1	7	1	71
5-Sep	53	7691	67	8020	12	1189	27	1578	159	18478	2	20	0	21	0	25	1	8	3	74
6-Sep	37	7728	88	8108	13	1202	32	1610	170	18648	1	21	2	23	1	26	0	8	4	78
7-Sep	61	7789	95	8203	42	1244	45	1655	243	18891	1	22	1	24	0	26	0	8	2	80
8-Sep	65	7854	116	8319	22	1266	74	1729	277	19168	2	24	4	28	0	26	1	9	7	87
9-Sep	94	7948	137	8456	29	1295	84	1813	344	19512	1	25	5	33	0	26	0	9	6	93
10-Sep	91	8039	200	8656	36	1331	58	1871	385	19897	0	25	0	33	2	28	2	11	4	97
11-Sep	99	8138	215	8871	21	1352	54	1925	389	20286	1	26	2	35	0	28	0	11	3	100
12-Sep	55	8193	260	9131	9	1361	120	2045	444	20730	2	28	1	36	0	28	0	11	3	103
13-Sep	27	8220	302	9433	11	1372	76	2121	416	21146	0	28	1	37	0	28	0	11	1	104
14-Sep	63	8283	52	9485	11	1383	43	2164	169	21315	1	29	0	37	0	28	1	12	2	106
15-Sep	44	8327	52	9537	8	1391	12	2176	116	21431	0	29	0	37	0	28	1	13	1	107
16-Sep	45	8372	34	9571	9	1400	6	2182	94	21525	0	29	2	39	0	28	1	14	3	110
17-Sep	24	8396	21	9592	15	1415	5	2187	65	21590	2	31	1	40	0	28	1	15	4	114
18-Sep	8	8404	8	9600	10	1425	32	2219	58	21648	0	31	0	40	0	28	1	16	1	115
19-Sep	28	8432	13	9613	3	1428	6	2225	50	21698	0	31	0	40	0	28	0	16	0	115
20-Sep	20	8452	34	9647	11	1439	7	2232	72	21770	0	31	0	40	0	28	0	16	0	115
21-Sep	15	8467	19	9666	0	1439	0	2232	34	21804	0	31	0	40	0	28	0	16	0	115
22-Sep	23	8490	35	9701	0	1439	0	2232	58	21862	0	31	1	41	0	28	0	16	1	116
23-Sep	3	8493	11	9712	0	1439	0	2232	14	21876	0	31	1	42	0	28	0	16	1	117
24-Sep	14	8507	11	9723	0	1439	0	2232	25	21901	0	31	1	43	0	28	0	16	1	118
25-Sep	17	8524	24	9747	0	1439	0	2232	41	21942	0	31	1	44	0	28	0	16	1	119
26-Sep	9	8533	17	9764	0	1439	0	2232	26	21968	2	33	1	45	0	28	0	16	3	122
27-Sep	3	8536	21	9785	0	1439	0	2232	24	21992	1	34	3	48	0	28	0	16	4	126
28-Sep	1	8537	15	9800	0	1439	0	2232	16	22008	0	34	0	48	0	28	0	16	0	126
29-Sep	3	8540	6	9806	0	1439	0	2232	9	22017	0	34	1	49	0	28	0	16	1	127
30-Sep	0	8540	2	9808	0	1439	0	2232	2	22019	0	34	0	49	0	28	0	16	0	127
Totals	8540		9808		1439		2232		22019		34		49		28		16		127	

Note 1: Lower wheels started on 7 June (FW2 at 18:50 hr and FW1 at 10:15 hr) and Upper wheels started on 7 June (FW4 at 12:00 hr) and 8 June (FW3 at 14:00).

Note 2: Shading represents non-operation of fishwheels. Extreme high water stopped all wheels from fishing between 11 and 22 June. Grease Harbour wheels have been out of operation from 11-24 June (FW3 & 4), 26-28 June (FW3), 26-30 June (FW4). FW3 and FW4 were stopped on 20 Sep and FW1 and FW2 were stopped on 30 Sep.

Table B-7. Catches of other salmonids captured in the Nass River fishwheels, 1999.

Date	Dolly Varden					Cutthroat trout					Rainbow trout					Whitefish				
	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total
7-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Jun	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
11-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
13 Jun - 21 Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22-Jun	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
23-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25-Jun	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28-Jun	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1-Jul	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
2-Jul	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	1
3-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
5-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9-Jul	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Jul	1	0	0	0	1	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0
11-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Jul	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Jul	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1
14-Jul	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-Jul	0	2	1	0	3	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1
16-Jul	0	0	0	0	0	1	2	0	0	3	0	2	0	0	2	0	0	0	0	0
17-Jul	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
19-Jul	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
20-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	3
21-Jul	0	4	0	0	4	0	1	0	0	1	0	0	0	0	0	1	0	0	1	2
22-Jul	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23-Jul	0	3	0	0	3	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0
24-Jul	0	3	1	0	4	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
25-Jul	3	2	0	0	5	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0

Table B-7. Catches of other salmonids captured in the Nass River fishwheels, 1999.

	Dolly Varden					Cutthroat trout					Rainbow trout					Whitefish				
Date	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total
26-Jul	5	13	0	0	18	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
27-Jul	9	13	0	0	22	0	2	0	0	2	0	0	0	0	0	0	4	2	1	7
28-Jul	0	10	0	0	10	0	1	1	0	2	0	1	0	0	1	0	0	0	0	0
29-Jul	0	13	0	0	13	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
30-Jul	0	22	0	0	22	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1
31-Jul	10	29	0	0	39	1	7	0	0	8	0	0	0	0	0	1	2	1	0	4
1-Aug	7	52	1	0	60	1	2	0	0	3	0	0	0	0	0	0	4	0	0	4
2-Aug	7	35	2	1	45	0	3	0	0	3	0	0	0	0	0	2	2	1	0	5
3-Aug	2	30	0	0	32	0	3	1	0	4	0	0	1	0	1	0	4	0	0	4
4-Aug	0	14	0	0	14	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2
5-Aug	0	9	0	1	10	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
6-Aug	1	8	0	1	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-Aug	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8-Aug	1	3	0	0	4	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
9-Aug	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Aug	0	4	2	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-Aug	1	4	0	1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Aug	4	10	0	0	14	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1
13-Aug	0	9	1	0	10	0	1	0	0	1	0	0	0	0	0	0	0	2	0	2
14-Aug	4	17	0	0	21	0	2	0	0	2	0	0	0	0	0	1	2	0	0	3
15-Aug	3	16	0	0	19	1	1	0	0	2	0	0	0	0	0	1	1	0	0	2
16-Aug	5	19	1	0	25	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
17-Aug	5	36	0	0	41	1	0	1	0	2	0	0	0	0	0	0	1	0	1	2
18-Aug	6	16	0	0	22	0	1	0	0	1	0	1	0	0	1	0	4	0	0	4
19-Aug	5	15	0	0	20	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
20-Aug	2	14	0	0	16	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1
21-Aug	1	8	0	0	9	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
22-Aug	1	16	0	0	17	0	0	0	0	0	0	0	0	0	0	1	5	0	0	6
23-Aug	0	18	1	2	21	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
24-Aug	0	5	1	0	6	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
25-Aug	5	14	0	2	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26-Aug	6	12	0	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27-Aug	6	14	0	0	20	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3
28-Aug	0	9	2	0	11	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
29-Aug	1	8	0	1	10	0	3	0	0	3	0	0	0	0	0	1	1	0	0	2
30-Aug	5	1	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31-Aug	2	11	0	0	13	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2
1-Sep	4	15	0	0	19	0	0	0	0	0	0	0	0	0	0	0	2	0	1	3
2-Sep	6	4	0	0	10	0	0	0	1	1	0	0	0	0	0	1	1	0	0	2
3-Sep	2	4	0	0	6	0	0	1	0	1	0	0	0	0	0	2	2	0	2	6

Table B-7. Catches of other salmonids captured in the Nass River fishwheels, 1999.

Date	Dolly Varden					Cutthroat trout					Rainbow trout					Whitefish				
	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total
4-Sep	3	7	0	0	10	0	3	0	0	3	0	0	0	0	0	1	2	0	0	3
5-Sep	5	3	0	2	10	0	1	0	0	1	0	0	0	0	0	3	1	1	0	5
6-Sep	2	13	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
7-Sep	3	7	2	1	13	0	3	0	0	3	0	1	0	0	1	4	0	0	2	6
8-Sep	2	4	0	2	8	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0
9-Sep	1	6	0	0	7	2	3	0	0	5	0	0	0	0	0	0	0	0	0	0
10-Sep	6	9	0	2	17	2	1	0	0	3	0	0	0	0	0	0	4	0	1	5
11-Sep	6	2	0	1	9	0	0	0	0	0	2	0	0	0	2	0	2	0	0	2
12-Sep	4	9	0	1	14	0	1	0	0	1	1	0	0	0	1	0	1	0	1	2
13-Sep	1	13	0	0	14	1	0	0	0	1	0	0	0	0	0	1	7	0	0	8
14-Sep	4	5	8	9	26	2	0	0	3	5	0	0	0	0	0	0	2	7	5	14
15-Sep	1	13	4	0	18	0	2	0	0	2	0	0	0	1	1	0	2	0	0	2
16-Sep	7	16	0	1	24	4	2	0	1	7	0	0	0	0	0	0	1	0	0	1
17-Sep	1	20	6	12	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18-Sep	2	39	0	0	41	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
19-Sep	4	25	1	6	36	0	1	0	0	1	0	0	0	0	0	1	6	0	1	8
20-Sep	4	10	9	7	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21-Sep	7	11	0	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22-Sep	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23-Sep	1	7	0	0	8	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
24-Sep	5	2	0	0	7	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
25-Sep	1	8	0	0	9	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
26-Sep	2	17	0	0	19	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
27-Sep	1	12	0	0	13	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
28-Sep	6	16	0	0	22	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
29-Sep	0	16	0	0	16	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1
30-Sep	0	11	0	0	11	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
Totals	204	889	43	53	1189	23	64	5	5	97	4	11	1	1	17	29	86	17	23	155

Note 1: Lower wheels started on 7 June (FW2 at 18:50 hr and FW1 at 10:15 hr) and Upper wheels started on 7 June (FW4 at 12:00 hr) and 8 June (FW3 at 14:00).

Note 2: Shading represents non-operation of fishwheels. Extreme high water stopped all wheels from fishing between 11 and 22 June. Grease Harbour wheels have been out of operation from 11-24 June (FW3 & 4), 26-28 June (FW3), 26-30 June (FW4). FW3 and FW4 were stopped on 20 Sep and FW1 and FW2 were stopped on 30

Table B-8. Catches of non-salmonids captured in the Nass River fishwheels, 1999.

Date	Pacific Lamprey					Long nose sucker					Northern pike minnow					Prickley Sculpin					Longfin Smelt				
	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total
7-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9-Jun	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
10-Jun	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Jun - 21 Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25-Jun	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27-Jun	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
30-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2-Jul	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3-Jul	0	0	4	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Jul	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Jul	0	0	1	1	2	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
6-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8-Jul	0	0	2	3	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9-Jul	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
10-Jul	0	0	1	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Jul	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14-Jul	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-Jul	0	0	3	4	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16-Jul	0	0	1	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-Jul	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18-Jul	0	0	5	6	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-Jul	0	0	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20-Jul	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21-Jul	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
22-Jul	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25-Jul	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
26-Jul	0	0	3	0	3	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0
27-Jul	0	0	0	1	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table B-8. Catches of non-salmonids captured in the Nass River fishwheels, 1999.

Date	Pacific Lamprey					Long nose sucker					Northern pike minnow					Prickley Sculpin					Longfin Smelt				
	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total
29-Jul	0	0	2	3	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31-Jul	0	0	0	0	0	0	0	1	1	2	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0
1-Aug	0	0	0	2	2	0	0	2	1	3	0	3	1	0	4	1	0	0	0	1	0	0	0	0	0
2-Aug	0	0	0	8	8	0	0	0	3	3	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0
3-Aug	0	0	1	0	1	0	0	0	1	1	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0
4-Aug	0	0	1	5	6	0	0	0	0	0	0	1	1	1	3	0	0	0	0	0	0	0	0	0	0
5-Aug	0	0	2	6	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-Aug	0	2	3	0	5	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
7-Aug	0	2	6	4	12	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
8-Aug	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9-Aug	0	0	2	3	5	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
10-Aug	0	0	1	4	5	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
11-Aug	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
12-Aug	0	0	0	1	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
13-Aug	0	0	0	2	2	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
14-Aug	0	1	2	5	8	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	0	0	0	0	0
15-Aug	0	0	1	3	4	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
16-Aug	0	0	2	2	4	0	1	0	0	1	0	1	0	0	1	0	0	1	1	2	0	0	0	0	0
17-Aug	0	0	0	0	0	0	0	0	0	0	1	2	0	2	5	0	0	0	0	0	0	0	0	0	0
18-Aug	0	1	0	1	2	0	0	0	1	1	0	2	3	0	5	0	0	0	0	0	0	0	0	0	0
19-Aug	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
20-Aug	0	0	1	0	1	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
21-Aug	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22-Aug	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24-Aug	0	0	0	2	2	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
25-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26-Aug	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
27-Aug	0	0	0	1	1	0	0	0	0	0	0	1	0	2	3	0	0	1	0	1	0	0	0	0	0
28-Aug	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0
29-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-Aug	0	0	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
31-Aug	0	0	4	2	6	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
1-Sep	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	1	1	0	0	0	0	0
2-Sep	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3-Sep	0	0	0	1	1	0	0	0	1	1	0	2	0	0	2	0	0	0	2	2	0	0	0	0	0
4-Sep	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Sep	0	0	0	3	3	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
6-Sep	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
7-Sep	1	0	1	5	7	0	0	0	0	0	0	0	1	1	2	0	0	0	1	1	0	0	0	0	0
8-Sep	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table B-8. Catches of non-salmonids captured in the Nass River fishwheels, 1999.

Date	Pacific Lamprey					Long nose sucker					Northern pike minnow					Prickley Sculpin					Longfin Smelt				
	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total
11-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
12-Sep	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0
13-Sep	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0
14-Sep	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
15-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
16-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
17-Sep	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-Sep	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	0	0	0	1	1	0	0	0	0	0
20-Sep	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
21-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24-Sep	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25-Sep	2	2	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
28-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
29-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	3	22	58	102	185	0	3	6	15	24	3	39	11	12	65	2	5	2	15	24	0	2	0	0	3

Note 1: Lower wheels started on 7 June (FW2 at 18:50 hr and FW1 at 10:15 hr) and Upper wheels started on 7 June (FW4 at 12:00 hr) and 8 June (FW3 at 14:00).

Note 2: Shading represents non-operation of fishwheels. Extreme high water stopped all wheels from fishing between 11 and 22 June. Grease Harbour wheels have been out of operation from 11-24 June (FW3 & 4), 26-28 June (FW3), 26-30 June (FW4). FW3 and FW4 were stopped on 20 Sep and FW1 and FW2 were stopped on 30 Sep.

Table B-9. Daily catches of Pacific salmon smolts captured in the Nass River fishwheels, 1999.

	Chinook					Sockeye					Coho					Steelhead				
Date	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total
7-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Jun	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
13 Jun - 21 Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
24-Jun	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1
25-Jun	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
27-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28-Jun	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
29-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2-Jul	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1
3-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0
4-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
5-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
7-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
11-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-Jul	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
16-Jul	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
18-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
19-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
22-Jul	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
23-Jul	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0
24-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
27-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table B-9. Daily catches of Pacific salmon smolts captured in the Nass River fishwheels, 1999.

Date	Chinook					Sockeye					Coho					Steelhead				
	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total
28-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29-Jul	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
30-Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31-Jul	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	3	0	0	4
1-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
2-Aug	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1	0	3
3-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
4-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	5
5-Aug	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
6-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
7-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
9-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
11-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
13-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	3
14-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
16-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
19-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
21-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
25-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
29-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
1-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	3
2-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
7-Sep	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
8-Sep	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0

Table B-9. *Daily catches of Pacific salmon smolts captured in the Nass River fishwheels, 1999.*

Date	Chinook					Sockeye					Coho					Steelhead				
	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total	FW1	FW2	FW3	FW4	Total
9-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
11-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
12-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
13-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-Sep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	2	4	0	0	6	1	0	1	0	2	3	2	2	3	10	13	25	7	12	57

Note 1: Lower wheels started on 7 June (FW2 at 18:50 hr and FW1 at 10:15 hr) and Upper wheels started on 7 June (FW4 at 12:00 hr) and 8 June (FW3 at 14:00).

Note 2: Shading represents non-operation of fishwheels. Extreme high water stopped all wheels from fishing between 11 and 22 June. Grease Harbour wheels have been out of operation from 11-24 June (FW3 & 4), 26-28 June (FW3), 26-30 June (FW4). FW3 and FW4 were stopped on 20 Sep and FW1 and FW2 were stopped on 30 Sep.

APPENDIX C

Summaries of recovery data for fish tagged at the Nass River fishwheels, 1999

Table C-1. Summary statistics of travel time data for chinook, sockeye and coho salmon tagged at the Nass River fishwheels, 1999.

Recapture	Fish tagged at fishwheel 1									Fish tagged at fishwheel 2									Both fishwheels combined								
	Chinook			Sockeye			Coho			Chinook			Sockeye			Coho			Chinook			Sockeye			Coho		
Location	N	Mean	SD[a]	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD
Fishwheel 1	7	11	7.21	103	2.3	2.6	52	4.2	4.7	80	7.2	7.4	411	1.5	2.3	63	2.6	2.9	87	7.5	7.4	514	1.7	2.4	115	3.3	3.9
Fishwheel 2	22	9.9	6.5	133	2.3	2.4	83	3.7	3.7	33	9.6	9.5	217	2.6	3.5	56	3.9	4.9	55	9.7	8.3	350	2.5	3.2	139	3.7	4.2
Fishwheel 3	22	17.1	9.6	125	6.6	4.1	28	8.3	4.8	64	15.6	7.6	221	6.2	3.7	35	6.8	4.9	86	16.0	8.1	346	6.4	3.8	63	7.5	4.9
Fishwheel 4	23	18.8	9.2	130	7.2	3.4	104	9.8	7.3	71	19.1	10.1	234	7.3	5.2	102	8.7	5.3	94	19.0	9.8	364	7.3	4.6	206	9.2	6.4
Meziadin				1319	21.3	5.8	50	29.3	11.6	2	74.0	2.8	2642	21.0	5.9	48	27.7	11.1	2	74.0	2.8	3961	21.1	5.9	98	28.5	11.4
Totals	74			1810			317			250			3725			304			324			5535			621		

[a] Standard deviation

Table C-2. Travel time information for recoveries of tagged chinook salmon by location tagged and location recovered, 1999.

Travel time (d)	Fish tagged at fishwheel 1					Fish tagged at fishwheel 2						Fish tagged at fishwheel 3					Fish tagged at fishwheel 4						Grand Total
	Location recovered																						
	Fw1	Fw2	Fw3	Fw4	Total	Fw1	Fw2	Fw3	Fw4	Mez	Total	Fw1	Fw3	Fw4	Mez	Total	Fw1	Fw2	Fw3	Fw4	Mez	Total	
<1	1	2			3	9	7				16		9			9			1	9		10	38
1		1			1	16	3				19			2		2			2	2		4	26
2			1		1	3	3	1	1		8		1	5		6			1	2		3	18
3		1	1		2	5	1				6		1	5		6				1		1	15
4				2	2	5			3		8		2	5		7			1	1		2	19
5				1	1	3	1	1			5	1	3	5		9			1	1		2	17
6	1	3			4	5		3			8		1	5		6			1			1	19
7	1	2		1	4	1		4	2		7		2	5		7			2			2	20
8				1	1	3	1	3	1		8			4		4						0	13
9		1			1	5	1	3			9		1	5		6				5		5	21
10		3	1		4	2	2	1	3		8			1		1			2			2	15
11			1	1	2	3		5	2		10		2	1		3	1			1		2	17
12			2	1	3	4	2	4	3		13		1	3		4				2		2	22
13	1	2	2		5	1	2	4	7		14			3		3			3	1		4	26
14	1	5	3	2	11	2	2	4	5		13		1	4		5			1	3		4	33
15	1		1		2	6		4	4		14			2		2				3		3	21
16					0			3	5		8			1		1			1	1		2	11
17			1		1	1	1	2	2		6			1		1						0	8
18				2	2		1		1		2					0			1	1		2	6
19			1		1	2	1	4	4		11		1	2		3			1	1		2	17
20		1	2		3			4	2		6					0			1	2		3	12
21			1	1	2	1		1	4		6			1		1				1		1	10
22	1				1		3	2	1		6			1		1		1		1		2	10
23			3	1	4				3		3			1		1						0	8
24				2	2	1			1		2			1		1			1			1	6
25					0			5	3		8					1			1	1		2	11
26				2	2						0					0			1			1	3
27		1	1		2			2	1		3			1		1						0	6
28				2	2				2		2		1	1		2			2			2	4
29				2	2		1		2		3					0						0	0
30				2	2				1		1					0						0	0
31					0			1	1		2					0				1		1	2

Table C-2. Travel time information for recoveries of tagged chinook salmon by location tagged and location recovered, 1999.

Travel time (d)	Fish tagged at fishwheel 1					Fish tagged at fishwheel 2						Fish tagged at fishwheel 3					Fish tagged at fishwheel 4						Grand Total
	Location recovered																						
	Fw1	Fw2	Fw3	Fw4	Total	Fw1	Fw2	Fw3	Fw4	Mez	Total	Fw1	Fw3	Fw4	Mez	Total	Fw1	Fw2	Fw3	Fw4	Mez	Total	
32					0			1	1		2					0				1		1	2
33					0				1		1					0						0	0
34					0	1		1	1		3					0						0	0
35					0	1	1				2			1		1						0	0
36					0						0					0			1			1	2
37					0			1			1					0						0	0
45					0				1		1					0						0	0
46					0				1		1					0						0	0
49					0				2		2					0						0	0
50			1		1						0					0						0	0
54					0						0				1	1						0	0
72					0					1	1					0						0	0
76					0					1	1					0						0	0
Totals	7	22	22	23	74	80	33	64	71	2	250	1	27	66	1	95	1	1	25	41	0	68	487

Table C-3. Travel time information for recoveries of tagged sockeye salmon by location tagged and location recovered, 1999.

Travel time (d)	Fish tagged at fishwheel 1						Fish tagged at fishwheel 2						Grand Total
	Location recovered												
	Fw1	Fw2	Fw3	Fw4	Mez	Total	Fw1	Fw2	Fw3	Fw4	Mez	Total	
<1	24	29				53	111	54				165	218
1	27	37				64	177	51	1	1		230	294
2	21	24	4	1		50	60	45	15	10		130	180
3	7	14	14	7		42	31	17	30	24		102	144
4	4	11	19	11		45	9	8	36	30		83	128
5	7	6	17	17		47	7	7	34	30		78	125
6	5	5	20	26		56	1	11	24	31		67	123
7	3	1	15	25		44	6	8	18	32		64	108
8	1	1	10	12		24	1	3	18	16	1	39	63
9	3	1	8	12		24	1	3	16	18	1	39	63
10			8	5	3	16	1	3	8	10	3	25	41
11		3	2	8	6	19	2	2	5	8	14	31	50
12		1	4	1	19	25	1		4	5	35	45	70
13					23	23	1		4	3	86	94	117
14			1	2	42	45	1	1		2	110	114	159
15	1			1	56	58			3	1	138	142	200
16					78	78		2	2	1	194	199	277
17				1	98	99				1	209	210	309
18					115	115		1	1	1	204	207	322
19					115	115			1	1	214	216	331
20			1		101	102				1	202	203	305
21			1		102	103					197	197	300
22					111	111				1	177	178	289
23					99	99				1	161	162	261
24					80	80					128	128	208
25					47	47				1	92	93	140
26					54	54					88	88	142
27					38	38		1		1	76	78	116
28					24	24	1			1	53	55	79
29					17	17					55	55	72
30					18	18					45	45	63
31					11	11					22	22	33
32					3	3			1	1	20	22	25
33				1	7	8					18	18	26
34					2	2				1	21	22	24
35					10	10					12	12	22
36					7	7				1	12	13	20
37			1		5	6					10	10	16
38					2	2					8	8	10
39					3	3					10	10	13
40					5	5					4	4	9
41					4	4					1	1	5
42					1	1					5	5	6

Table C-3. Travel time information for recoveries of tagged sockeye salmon by location tagged and location recovered, 1999.

Travel time (d)	Fish tagged at fishwheel 1						Fish tagged at fishwheel 2						Grand Total
	Location recovered												
	Fw1	Fw2	Fw3	Fw4	Mez	Total	Fw1	Fw2	Fw3	Fw4	Mez	Total	
43					2	2					2	2	4
44					1	1					1	1	2
45					2	2					4	4	6
46					1	1					2	2	3
48					2	2					3	3	5
49						0						0	0
50					2	2						0	2
54					1	1					1	1	2
55					1	1					1	1	2
57					1	1						0	1
58						0					1	1	1
74						0					1	1	1
Totals	103	133	125	130	1319	1810	411	217	221	234	2642	3725	5535

Table C-4. Travel time information for recoveries of tagged coho salmon by location tagged and location recovered, 1999.

Travel time (d)	Fish tagged at fishwheel 1						Fish tagged at fishwheel 2						Fish tagged at fishwheel 3						Fish tagged at fishwheel 4						Grand Total
	Location recovered																								
	Fw1	Fw2	Fw3	Fw4	Mez	Total	Fw1	Fw2	Fw3	Fw4	Mez	Total	Fw1	Fw2	Fw3	Fw4	Mez	Total	Fw1	Fw2	Fw3	Fw4	Mez	Total	
<1	8	15				23	15	14				29			4	1		5				19		19	76
1	11	19				30	16	9		1		26			1	7		8			2	9		11	75
2	7	7	1	4		19	9	4	2	4		19			1	7		8			2	2		4	50
3	5	6	2	5		18	4	4	2	7		17			3	8		11				4		4	50
4	3	10	4	4		21	5	5	12	8		30				3		3		1		3		4	58
5	1	5	3	12		21	3	7	2	12		24			1	3		4			3	3		6	55
6	3	6	3	14		26	4	3	4	16		27	1			2		3				4		4	60
7	4	1	2	7		14	4	3	4	6		17				2		2			3	5		8	41
8	4	6	2	10		22	1	2	2	7		12						0			1	1		2	36
9	2	1	1	12		16		2	2	4		8			1	2		3				3		3	30
10		1	1	5		7			1	4		5						0			2			2	14
11		1	1	6		8	1			7		8						0			1			1	17
12	2	2	2	4		10				4		4				2	2	4				3		3	21
13	1	2	2	4		9			1	6		7			1	2		3				2	2	4	23
14			2	2		4	1			2	1	4						0				1	1	2	10
15				2		2				4		4					2	2				2		2	10
16		1	1	3		5		1		3	1	5					2	2			1	1	3	5	17
17				1	3	4		1		2	2	5					4	4					1	1	14
18				1	4	5				1	3	4				1		1				2	2	4	14
19				1	2	3					1	1					1	1				1	2	3	8
20				1	3	4			2		2	4					1	1			1		1	2	11
21					2	2				1	3	4					2	2						0	8
22			1		3	4			1		4	5						0						0	9
23					3	3					3	3					2	2					1	1	9
24					2	2					6	6					1	1					3	3	12
25				1	1	2				1	1	2					1	1					2	2	7
26	1				1	2				1	1	2						0					2	2	6
27					3	3					1	1						0					1	1	5
28					1	1		1		1	1	3					1	1				1	2	3	8
29				2	4	6					1	1						0			1		1	2	9
30					2	2					2	2						0					1	1	5
31						0					3	3					1	1					2	2	6
32					2	2					3	3						0					2	2	7
33				1	1	2					1	1					1	1						0	4

Table C-4. Travel time information for recoveries of tagged coho salmon by location tagged and location recovered, 1999.

Travel time (d)	Fish tagged at fishwheel 1						Fish tagged at fishwheel 2						Fish tagged at fishwheel 3						Fish tagged at fishwheel 4						Grand Total
	Location recovered																								
	Fw1	Fw2	Fw3	Fw4	Mez	Total	Fw1	Fw2	Fw3	Fw4	Mez	Total	Fw1	Fw2	Fw3	Fw4	Mez	Total	Fw1	Fw2	Fw3	Fw4	Mez	Total	
34					1	1						0						0					1	1	2
35					1	1					2	2						0					1	1	4
36						0						0						0					1	1	1
37					1	1					1	1					1	1					1	1	4
38					2	2					1	1						0						0	3
39				1	1	2						0					1	1					1	1	4
41					1	1						0						0						0	1
42						0						0						0					1	1	1
43					2	2					1	1						0						0	3
45						0					1	1						0						0	1
46				1		1						0						0						0	1
47						0						0						0					1	1	1
52					1	1						0						0						0	1
55						0						0					1	1						0	1
57					1	1						0						0						0	1
62					1	1						0						0						0	1
66						0						0					1	1						0	1
67					1	1						0						0						0	1
69						0					2	2						0						0	2
Totals	52	83	28	104	50	317	63	56	35	102	48	304	1	0	12	40	25	78	0	1	17	66	36	120	819

APPENDIX D

Daily counts of salmon at the Meziadin fishway and in-season sockeye escapement estimates, 1999

Table D-1. Daily counts of sockeye salmon through the Meziadin fishway, 4 July to 15 October 1999.

	Adults		Jacks		All sockeye		No. of tags counted		Recovered	Portion	Portion of adults tagged	
Date	Daily	Cum.	Daily	Cum.	Daily	Cum.	Total	Cum.	tags	recovered	Daily	Cum.
04-Jul	1	1	0	-	1	1	0	-			0.000	0.000
05-Jul	0	1	0	-	0	1	0	-				0.000
06-Jul	0	1	0	-	0	1	0	-				0.000
07-Jul	0	1	0	-	0	1	0	-				0.000
08-Jul	5	6	0	-	5	6	0	-			0.000	0.000
09-Jul	28	34	0	-	28	34	0	-			0.000	0.000
10-Jul	11	45	0	-	11	45	0	-			0.000	0.000
11-Jul	34	79	0	-	34	79	0	-			0.000	0.000
12-Jul	49	128	0	-	49	128	1	1	1	1.00	0.020	0.008
13-Jul	104	232	0	-	104	232	0	1			0.000	0.004
14-Jul	168	400	1	1	169	401	4	5	4	1.00	0.024	0.013
15-Jul	361	761	1	2	362	763	8	13	8	1.00	0.022	0.017
16-Jul	492	1,253	2	4	494	1,257	8	21	8	1.00	0.016	0.017
17-Jul	1,088	2,341	2	6	1090	2,347	25	46	23	0.92	0.023	0.020
18-Jul	3,351	5,692	2	8	3353	5,700	88	134	60	0.68	0.026	0.024
19-Jul	4,550	10,242	8	16	4558	10,258	137	271	65	0.47	0.030	0.026
20-Jul	3,454	13,696	0	16	3454	13,712	94	365	46	0.49	0.027	0.027
21-Jul	11,521	25,217	3	19	11524	25,236	282	647	61	0.22	0.024	0.026
22-Jul	8,925	34,142	5	24	8930	34,166	229	876	100	0.44	0.026	0.026
23-Jul	4,534	38,676	4	28	4538	38,704	142	1,018	92	0.65	0.031	0.026
24-Jul	5,928	44,604	8	36	5936	44,640	248	1,266	104	0.42	0.042	0.028
25-Jul	12,379	56,983	11	47	12390	57,030	452	1,718	119	0.26	0.037	0.030
26-Jul	12,780	69,763	16	63	12796	69,826	646	2,364	131	0.20	0.051	0.034
27-Jul	5,263	75,026	17	80	5280	75,106	252	2,616	120	0.48	0.048	0.035
28-Jul	3,508	78,534	17	97	3525	78,631	171	2,787	109	0.64	0.049	0.035
29-Jul	2,787	81,321	19	116	2806	81,437	171	2,958	171	1.00	0.061	0.036
30-Jul	2,517	83,838	12	128	2529	83,966	141	3,099	117	0.83	0.056	0.037
31-Jul	8,199	92,037	72	200	8271	92,237	407	3,506	94	0.23	0.050	0.038
01-Aug	3,999	96,036	32	232	4031	96,268	175	3,681	132	0.75	0.044	0.038
02-Aug	6,391	102,427	60	292	6451	102,719	253	3,934	181	0.72	0.040	0.038
03-Aug	5,453	107,880	62	354	5515	108,234	243	4,177	159	0.65	0.045	0.039

Table D-1. Daily counts of sockeye salmon through the Meziadin fishway, 4 July to 15 October 1999.

	Adults		Jacks		All sockeye		No. of tags counted		Recovered	Portion	Portion of adults tagged	
Date	Daily	Cum.	Daily	Cum.	Daily	Cum.	Total	Cum.	tags	recovered	Daily	Cum.
04-Aug	4,689	112,569	47	401	4736	112,970	195	4,372	130	0.67	0.042	0.039
05-Aug	3,884	116,453	34	435	3918	116,888	151	4,523	124	0.82	0.039	0.039
06-Aug	2,612	119,065	13	448	2625	119,513	95	4,618	81	0.85	0.036	0.039
07-Aug	1,322	120,387	11	459	1333	120,846	38	4,656	34	0.89	0.029	0.039
08-Aug	554	120,941	5	464	559	121,405	19	4,675	19	1.00	0.034	0.039
09-Aug	717	121,658	7	471	724	122,129	22	4,697	21	0.95	0.031	0.039
10-Aug	1,367	123,025	11	482	1378	123,507	41	4,738	37	0.90	0.030	0.039
11-Aug	2,441	125,466	15	497	2456	125,963	70	4,808	62	0.89	0.029	0.038
12-Aug	2,238	127,704	24	521	2262	128,225	55	4,863	52	0.95	0.025	0.038
13-Aug	2,153	129,857	32	553	2185	130,410	69	4,932	64	0.93	0.032	0.038
14-Aug	1,096	130,953	22	575	1118	131,528	44	4,976	41	0.93	0.040	0.038
15-Aug	1,188	132,141	26	601	1214	132,742	47	5,023	34	0.72	0.040	0.038
16-Aug	1,694	133,835	40	641	1734	134,476	44	5,067	42	0.95	0.026	0.038
17-Aug	1,606	135,441	46	687	1652	136,128	52	5,119	49	0.94	0.032	0.038
18-Aug	1,796	137,237	33	720	1829	137,957	49	5,168	45	0.92	0.027	0.038
19-Aug	1,927	139,164	56	776	1983	139,940	47	5,215	39	0.83	0.024	0.037
20-Aug	2,624	141,788	88	864	2712	142,652	54	5,269	44	0.81	0.021	0.037
21-Aug	1,999	143,787	142	1,006	2141	144,793	58	5,327	55	0.95	0.029	0.037
22-Aug	2,227	146,014	136	1,142	2363	147,156	58	5,385	55	0.95	0.026	0.037
23-Aug	1,509	147,523	75	1,217	1584	148,740	43	5,428	42	0.98	0.028	0.037
24-Aug	1,751	149,274	72	1,289	1823	150,563	56	5,484	51	0.91	0.032	0.037
25-Aug	1,991	151,265	112	1,401	2103	152,666	64	5,548	59	0.92	0.032	0.037
26-Aug	2,414	153,679	147	1,548	2561	155,227	64	5,612	57	0.89	0.027	0.037
27-Aug	1,067	154,746	75	1,623	1142	156,369	39	5,651	35	0.90	0.037	0.037
28-Aug	2,417	157,163	209	1,832	2626	158,995	80	5,731	75	0.94	0.033	0.036
29-Aug	941	158,104	61	1,893	1002	159,997	27	5,758	26	0.96	0.029	0.036
30-Aug	442	158,546	60	1,953	502	160,499	17	5,775	17	1.00	0.038	0.036
31-Aug	979	159,525	106	2,059	1085	161,584	28	5,803	27	0.96	0.029	0.036
01-Sep	1,978	161,503	131	2,190	2109	163,693	72	5,875	67	0.93	0.036	0.036
02-Sep	1,805	163,308	176	2,366	1981	165,674	72	5,947	68	0.94	0.040	0.036
03-Sep	963	164,271	138	2,504	1101	166,775	28	5,975	27	0.96	0.029	0.036

Table D-1. Daily counts of sockeye salmon through the Meziadin fishway, 4 July to 15 October 1999.

	Adults		Jacks		All sockeye		No. of tags counted		Recovered	Portion	Portion of adults tagged	
Date	Daily	Cum.	Daily	Cum.	Daily	Cum.	Total	Cum.	tags	recovered	Daily	Cum.
04-Sep	1,574	165,845	135	2,639	1709	168,484	53	6,028	49	0.92	0.034	0.036
05-Sep	790	166,635	125	2,764	915	169,399	40	6,068	37	0.93	0.051	0.036
06-Sep	1,118	167,753	120	2,884	1238	170,637	56	6,124	52	0.93	0.050	0.037
07-Sep	1,167	168,920	101	2,985	1268	171,905	46	6,170	43	0.93	0.039	0.037
08-Sep	587	169,507	46	3,031	633	172,538	15	6,185	13	0.87	0.026	0.036
09-Sep	1,136	170,643	65	3,096	1201	173,739	38	6,223	38	1.00	0.033	0.036
10-Sep	820	171,463	51	3,147	871	174,610	19	6,242	18	0.95	0.023	0.036
11-Sep	526	171,989	37	3,184	563	175,173	16	6,258	15	0.94	0.030	0.036
12-Sep	966	172,955	45	3,229	1011	176,184	50	6,308	50	1.00	0.052	0.036
13-Sep	994	173,949	132	3,361	1126	177,310	34	6,342	31	0.91	0.034	0.036
14-Sep	917	174,866	96	3,457	1013	178,323	31	6,373	29	0.94	0.034	0.036
15-Sep	712	175,578	97	3,554	809	179,132	19	6,392	18	0.95	0.027	0.036
16-Sep	636	176,214	80	3,634	716	179,848	17	6,409	16	0.94	0.027	0.036
17-Sep	539	176,753	76	3,710	615	180,463	14	6,423	13	0.93	0.026	0.036
18-Sep	473	177,226	113	3,823	586	181,049	7	6,430	5	0.71	0.015	0.036
19-Sep	581	177,807	143	3,966	724	181,773	15	6,445	14	0.93	0.026	0.036
20-Sep	291	178,098	55	4,021	346	182,119	9	6,454	8	0.89	0.031	0.036
21-Sep	221	178,319	52	4,073	273	182,392	4	6,458	3	0.75	0.018	0.036
22-Sep	162	178,481	41	4,114	203	182,595	0	6,458			0.000	0.036
23-Sep	224	178,705	41	4,155	265	182,860	7	6,465	6	0.86	0.031	0.036
24-Sep	42	178,747	3	4,158	45	182,905	2	6,467	2	1.00	0.048	0.036
25-Sep	41	178,788	3	4,161	44	182,949	0	6,467			0.000	0.036
26-Sep	41	178,829	7	4,168	48	182,997	0	6,467			0.000	0.036
27-Sep	90	178,919	12	4,180	102	183,099	3	6,470	3	1.00	0.033	0.036
28-Sep	86	179,005	5	4,185	91	183,190	1	6,471	1	1.00	0.012	0.036
29-Sep	59	179,064	8	4,193	67	183,257	2	6,473	2	1.00	0.034	0.036
30-Sep	86	179,150	6	4,199	92	183,349	0	6,473			0.000	0.036
01-Oct	101	179,251	6	4,205	107	183,456	0	6,473			0.000	0.036
02-Oct	127	179,378	5	4,210	132	183,588	0	6,473			0.000	0.036
03-Oct	170	179,548	11	4,221	181	183,769	1	6,474	1	1.00	0.006	0.036
04-Oct	223	179,771	5	4,226	228	183,997	5	6,479	5	1.00	0.022	0.036

Table D-1. Daily counts of sockeye salmon through the Meziadin fishway, 4 July to 15 October 1999.

	Adults		Jacks		All sockeye		No. of tags counted		Recovered	Portion	Portion of adults tagged	
Date	Daily	Cum.	Daily	Cum.	Daily	Cum.	Total	Cum.	tags	recovered	Daily	Cum.
05-Oct	67	179,838	3	4,229	70	184,067	2	6,481	2	1.00	0.030	0.036
06-Oct	102	179,940	17	4,246	119	184,186	0	6,481			0.000	0.036
07-Oct	96	180,036	15	4,261	111	184,297	1	6,482	1	1.00	0.010	0.036
08-Oct	131	180,167	25	4,286	156	184,453	0	6,482			0.000	0.036
09-Oct	44	180,211	16	4,302	60	184,513	0	6,482			0.000	0.036
10-Oct	48	180,259	10	4,312	58	184,571	0	6,482			0.000	0.036
11-Oct	44	180,303	8	4,320	52	184,623	1	6,483	1	1.00	0.023	0.036
12-Oct	12	180,315	2	4,322	14	184,637	0	6,483			0.000	0.036
13-Oct	17	180,332	2	4,324	19	184,656	0	6,483			0.000	0.036
14-Oct	13	180,345	2	4,326	15	184,671	0	6,483			0.000	0.036
15-Oct	5	180,350	1	4,327	6	184,677	0	6,483			0.000	0.036
Total	180,350		4,327		184,677		6,483		3,960	0.61	0.036	

Table D-2. Daily counts of chinook, coho, steelhead and pink salmon through the Meziadin fishway, 4 July to 15 October 1999.

	Chinook							Coho									
	Adults		Tags		Cumulative	Jacks		Adults		Tags		Portion tagged		Jacks		Steelhead	Pink
Date	Daily	Cum.	Daily	Cum.	portion tagged	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily Cum.	Daily Cum.
4-Jul	0	-	0	-		0	-	0	-	0	-			0	-	0 -	0 -
5-Jul	0	-	0	-		0	-	0	-	0	-			0	-	0 -	0 -
6-Jul	0	-	0	-		0	-	0	-	0	-			0	-	0 -	0 -
7-Jul	0	-	0	-		0	-	0	-	0	-			0	-	0 -	0 -
8-Jul	0	-	0	-		0	-	0	-	0	-			0	-	0 -	0 -
9-Jul	0	-	0	-		0	-	0	-	0	-			0	-	0 -	0 -
10-Jul	0	-	0	-		0	-	0	-	0	-			0	-	0 -	0 -
11-Jul	0	-	0	-		0	-	0	-	0	-			0	-	0 -	0 -
12-Jul	0	-	0	-		0	-	0	-	0	-			0	-	0 -	0 -
13-Jul	0	-	0	-		0	-	0	-	0	-			0	-	0 -	0 -
14-Jul	1	1	0	-	0.000	0	-	0	-	0	-			0	-	0 -	0 -
15-Jul	0	1	0	-	0.000	0	-	0	-	0	-			0	-	0 -	0 -
16-Jul	0	1	0	-	0.000	0	-	0	-	0	-			0	-	0 -	0 -
17-Jul	0	1	0	-	0.000	0	-	0	-	0	-			0	-	0 -	0 -
18-Jul	0	1	0	-	0.000	0	-	0	-	0	-			0	-	0 -	0 -
19-Jul	1	2	0	-	0.000	2	2	0	-	0	-			0	-	0 -	0 -
20-Jul	1	3	0	-	0.000	1	3	0	-	0	-			0	-	0 -	0 -
21-Jul	1	4	0	-	0.000	2	5	0	-	0	-			0	-	0 -	0 -
22-Jul	2	6	0	-	0.000	1	6	0	-	0	-			0	-	0 -	0 -
23-Jul	6	12	1	1	0.083	0	6	0	-	0	-			0	-	0 -	0 -
24-Jul	1	13	0	1	0.077	0	6	0	-	0	-			0	-	0 -	0 -
25-Jul	13	26	0	1	0.038	2	8	0	-	0	-			0	-	0 -	0 -
26-Jul	12	38	2	3	0.079	1	9	0	-	0	-			0	-	0 -	0 -
27-Jul	6	44	0	3	0.068	0	9	0	-	0	-			0	-	0 -	0 -
28-Jul	9	53	1	4	0.075	0	9	0	-	0	-			0	-	0 -	0 -
29-Jul	4	57	0	4	0.070	0	9	0	-	0	-			0	-	0 -	0 -
30-Jul	0	57	0	4	0.070	1	10	0	-	0	-			0	-	0 -	0 -
31-Jul	3	60	2	6	0.100	0	10	0	-	0	-			0	-	0 -	0 -
1-Aug	3	63	0	6	0.095	1	11	0	-	0	-			0	-	0 -	0 -
2-Aug	3	66	0	6	0.091	1	12	0	-	0	-			0	-	0 -	0 -
3-Aug	1	67	1	7	0.104	0	12	0	-	0	-			0	-	0 -	0 -
4-Aug	1	68	0	7	0.103	0	12	0	-	0	-			0	-	0 -	0 -

Table D-2. Daily counts of chinook, coho, steelhead and pink salmon through the Meziadin fishway, 4 July to 15 October 1999.

	Chinook							Coho											
	Adults		Tags		Cumulative	Jacks		Adults		Tags		Portion tagged		Jacks		Steelhead		Pink	
Date	Daily	Cum.	Daily	Cum.	portion tagged	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
5-Aug	0	68	0	7	0.103	1	13	0	-	0	-			0	-	0	-	0	-
6-Aug	1	69	0	7	0.101	3	16	0	-	0	-			0	-	0	-	0	-
7-Aug	3	72	0	7	0.097	2	18	0	-	0	-			0	-	0	-	0	-
8-Aug	4	76	2	9	0.118	2	20	0	-	0	-			0	-	0	-	0	-
9-Aug	7	83	1	10	0.120	7	27	0	-	0	-			0	-	0	-	0	-
10-Aug	2	85	0	10	0.118	0	27	0	-	0	-			0	-	0	-	0	-
11-Aug	4	89	1	11	0.124	2	29	0	-	0	-			0	-	0	-	0	-
12-Aug	2	91	0	11	0.121	1	30	0	-	0	-			0	-	0	-	0	-
13-Aug	1	92	0	11	0.120	1	31	0	-	0	-			0	-	0	-	0	-
14-Aug	3	95	0	11	0.116	2	33	0	-	0	-			0	-	0	-	0	-
15-Aug	1	96	0	11	0.115	0	33	1	1	0	-	0.000	0.000	0	-	0	-	0	-
16-Aug	3	99	0	11	0.111	1	34	0	1	0	-		0.000	0	-	0	-	0	-
17-Aug	1	100	0	11	0.110	1	35	0	1	0	-		0.000	0	-	0	-	0	-
18-Aug	0	100	0	11	0.110	1	36	0	1	0	-		0.000	0	-	0	-	0	-
19-Aug	3	103	0	11	0.107	2	38	0	1	0	-		0.000	1	1	0	-	0	-
20-Aug	5	108	1	12	0.111	0	38	10	11	0	-	0.000	0.000	0	1	0	-	0	-
21-Aug	1	109	0	12	0.110	2	40	7	18	0	-	0.000	0.000	0	1	0	-	0	-
22-Aug	1	110	1	13	0.118	1	41	5	23	0	-	0.000	0.000	0	1	0	-	0	-
23-Aug	1	111	1	14	0.126	0	41	7	30	1	1	0.143	0.033	0	1	0	-	0	-
24-Aug	1	112	0	14	0.125	2	43	4	34	0	1	0.000	0.029	0	1	0	-	0	-
25-Aug	2	114	1	15	0.132	0	43	11	45	0	1	0.000	0.022	4	5	0	-	0	-
26-Aug	5	119	1	16	0.134	1	44	15	60	0	1	0.000	0.017	2	7	0	-	0	-
27-Aug	2	121	0	16	0.132	1	45	11	71	0	1	0.000	0.014	3	10	0	-	0	-
28-Aug	1	122	0	16	0.131	2	47	34	105	0	1	0.000	0.010	3	13	0	-	0	-
29-Aug	3	125	1	17	0.136	0	47	11	116	0	1	0.000	0.009	3	16	0	-	0	-
30-Aug	0	125	0	17	0.136	1	48	5	121	0	1	0.000	0.008	0	16	0	-	0	-
31-Aug	1	126	0	17	0.135	0	48	13	134	0	1	0.000	0.007	0	16	0	-	0	-
1-Sep	1	127	0	17	0.134	0	48	42	176	0	1	0.000	0.006	11	27	0	-	0	-
2-Sep	1	128	0	17	0.133	1	49	42	218	4	5	0.095	0.023	8	35	0	-	0	-
3-Sep	1	129	0	17	0.132	0	49	17	235	0	5	0.000	0.021	2	37	0	-	0	-
4-Sep	3	132	2	19	0.144	0	49	68	303	5	10	0.074	0.033	10	47	0	-	0	-
5-Sep	0	132	0	19	0.144	0	49	34	337	3	13	0.088	0.039	4	51	0	-	0	-

Table D-2. Daily counts of chinook, coho, steelhead and pink salmon through the Meziadin fishway, 4 July to 15 October 1999.

	Chinook							Coho											
	Adults		Tags		Cumulative	Jacks		Adults		Tags		Portion tagged		Jacks		Steelhead		Pink	
Date	Daily	Cum.	Daily	Cum.	portion tagged	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
6-Sep	2	134	1	20	0.149	2	51	75	412	1	14	0.013	0.034	12	63	0	-	0	-
7-Sep	2	136	1	21	0.154	1	52	63	475	2	16	0.032	0.034	7	70	0	-	0	-
8-Sep	4	140	1	22	0.157	0	52	35	510	5	21	0.143	0.041	2	72	0	-	0	-
9-Sep	4	144	1	23	0.160	1	53	112	622	5	26	0.045	0.042	4	76	0	-	0	-
10-Sep	5	149	3	26	0.174	2	55	73	695	3	29	0.041	0.042	5	81	0	-	0	-
11-Sep	3	152	0	26	0.171	1	56	79	774	5	34	0.063	0.044	2	83	0	-	0	-
12-Sep	3	155	0	26	0.168	0	56	100	874	10	44	0.100	0.050	2	85	1	1	0	-
13-Sep	2	157	0	26	0.166	2	58	136	1,010	7	51	0.051	0.050	6	91	0	1	0	-
14-Sep	4	161	1	27	0.168	0	58	151	1,161	12	63	0.079	0.054	5	96	1	2	0	-
15-Sep	2	163	0	27	0.166	1	59	282	1,443	17	80	0.060	0.055	9	105	1	3	0	-
16-Sep	2	165	0	27	0.164	1	60	217	1,660	15	95	0.069	0.057	4	109	0	3	0	-
17-Sep	3	168	0	27	0.161	0	60	211	1,871	14	109	0.066	0.058	8	117	0	3	0	-
18-Sep	1	169	0	27	0.160	2	62	134	2,005	8	117	0.060	0.058	7	124	2	5	0	-
19-Sep	0	169	0	27	0.160	0	62	177	2,182	13	130	0.073	0.060	10	134	3	8	0	-
20-Sep	0	169	0	27	0.160	0	62	53	2,235	0	130	0.000	0.058	1	135	0	8	0	-
21-Sep	1	170	0	27	0.159	0	62	47	2,282	5	135	0.106	0.059	4	139	0	8	0	-
22-Sep	2	172	0	27	0.157	0	62	21	2,303	0	135	0.000	0.059	2	141	1	9	0	-
23-Sep	0	172	0	27	0.157	0	62	54	2,357	4	139	0.074	0.059	1	142	1	10	0	-
24-Sep	0	172	0	27	0.157	0	62	15	2,372	1	140	0.067	0.059	1	143	0	10	0	-
25-Sep	0	172	0	27	0.157	0	62	15	2,387	2	142	0.133	0.059	0	143	0	10	0	-
26-Sep	0	172	0	27	0.157	0	62	22	2,409	0	142	0.000	0.059	0	143	0	10	0	-
27-Sep	0	172	0	27	0.157	0	62	23	2,432	2	144	0.087	0.059	3	146	0	10	0	-
28-Sep	0	172	0	27	0.157	0	62	27	2,459	0	144	0.000	0.059	0	146	0	10	0	-
29-Sep	0	172	0	27	0.157	0	62	19	2,478	3	147	0.158	0.059	1	147	0	10	0	-
30-Sep	0	172	0	27	0.157	0	62	9	2,487	0	147	0.000	0.059	0	147	0	10	0	-
1-Oct	0	172	0	27	0.157	0	62	30	2,517	0	147	0.000	0.058	1	148	0	10	0	-
2-Oct	1	173	0	27	0.156	0	62	47	2,564	2	149	0.043	0.058	0	148	0	10	0	-
3-Oct	0	173	0	27	0.156	0	62	65	2,629	2	151	0.031	0.057	1	149	0	10	0	-
4-Oct	0	173	0	27	0.156	0	62	86	2,715	4	155	0.047	0.057	0	149	0	10	0	-
5-Oct	1	174	0	27	0.155	0	62	20	2,735	1	156	0.050	0.057	0	149	0	10	0	-
6-Oct	0	174	0	27	0.155	0	62	32	2,767	2	158	0.063	0.057	0	149	0	10	0	-
7-Oct	0	174	0	27	0.155	0	62	31	2,798	4	162	0.129	0.058	0	149	0	10	0	-

Table D-2. Daily counts of chinook, coho, steelhead and pink salmon through the Meziadin fishway, 4 July to 15 October 1999.

	Chinook							Coho										
	Adults		Tags		Cumulative	Jacks		Adults		Tags		Portion tagged		Jacks		Steelhead		Pink	
Date	Daily	Cum.	Daily	Cum.	portion tagged	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
8-Oct	0	174	0	27	0.155	0	62	33	2,831	0	162	0.000	0.057	1	150	0	10	0	-
9-Oct	0	174	0	27	0.155	0	62	16	2,847	1	163	0.063	0.057	2	152	0	10	0	-
10-Oct	0	174	0	27	0.155	0	62	19	2,866	0	163	0.000	0.057	0	152	0	10	0	-
11-Oct	0	174	0	27	0.155	0	62	35	2,901	4	167	0.114	0.058	1	153	1	11	0	-
12-Oct	0	174	0	27	0.155	0	62	11	2,912	0	167	0.000	0.057	0	153	2	13	0	-
13-Oct	0	174	0	27	0.155	0	62	25	2,937	1	168	0.040	0.057	0	153	0	13	0	-
14-Oct	0	174	0	27	0.155	0	62	29	2,966	0	168	0.000	0.057	0	153	2	15	0	-
15-Oct	0	174	0	27	0.155	0	62	8	2,974	0	168	0.000	0.056	0	153	0	15	0	-
Total	174		27			62		2974		168		0.056		153		15		0	

Table D-3. The data used to derive the in-season sockeye salmon escapment estimates for the Nass River, 1999. These are preliminary data as presented during the season; refer to Appendix B for complete catch and tag totals.

	Fishwheel Catch				Fishwheel Tags					Grease Harbour (FW3&4)						In-season estimates	
Date	Daily FW1	Daily FW2	Total	Cum. catch	Daily FW1	Daily FW2	Total	Cum. tagged	Prop. tagged	Catch (incl. rcps)	Cum. catch	Raw Recaps	Cum. recaps	Adj. Recaps	Exp. Factor	Mark-Recap.	Expansion factor (fw1&2; 94-97)
07-Jun	0	0	0	0	0	0	0	0	0%	2	2	0	0				
08-Jun	5	0	5	5	5	0	5	5	100%	1	3	0	0			69	124
09-Jun	3	6	9	14	2	5	7	12	78%	1	4	0	0			192	348
10-Jun	2	14	16	30	1	14	15	27	94%	1	5	0	0			411	746
11-Jun	0	3	3	33	0	3	3	30	100%	1	6	0	0	0		453	821
12-Jun										Pre-season expansion factors:		24.9 June					
13-Jun												18.9 27 June					
14-Jun												13.0 28 June-14 July					
15-Jun												15.2 15 July					
16-Jun												17.4 16-30 July					
17-Jun												21.7 31 July					
18-Jun										(1-day transition		25.9 1-14 Aug					
19-Jun										interpolation		25.7 15 August					
20-Jun										between periods)		25.6 16-31 Aug					
21-Jun																	
22-Jun	13	29	42	75	13	26	39	69	93%							1,029	1,366
23-Jun	51	74	125	200	46	69	115	184	92%							2,743	2,987
24-Jun	65	244	309	509	64	237	301	485	97%							6,981	6,996
25-Jun	68	312	380	889	36	156	192	677	51%	79	85	2	2	0		12,193	11,925
26-Jun	111	314	425	1314	56	158	214	891	50%							18,023	17,438
27-Jun	97	243	340	1654	57	113	170	1061	50%							22,686	23,873
28-Jun	93	157	250	1904	66	108	174	1235	70%							26,115	27,116
29-Jun	135	155	290	2194	98	71	169	1404	58%	39	124	3	5	7		30,093	30,878
30-Jun	143	183	326	2520	72	94	166	1570	51%	85	209	4	9	8	13.7	**34,564**	35,106
01-Jul	170	230	400	2920	86	115	201	1771	50%	138	347	8	17	14	7.3	39,901	40,295
02-Jul	270	254	524	3444	137	127	264	2035	50%	158	505	5	22	8	9.2	46,776	47,093
03-Jul	368	303	671	4115	184	153	337	2372	50%	637	1142	24	46	42	10.8	56,193	55,797
04-Jul	221	279	500	4615	127	124	251	2623	50%	510	1652	14	60	28	12.3	62,935	62,283
05-Jul	188	222	410	5025	101	104	205	2828	50%	243	1895	8	68	20	12.1	68,230	67,502
06-Jul	240	223	463	5488	120	143	263	3091	57%	250	2145	4	72	10	13.3	73,771	73,608
07-Jul	372	539	911	6399	216	239	455	3546	50%	868	3013	24	96	53	13.1	84,545	85,426
08-Jul	678	773	1451	7850	299	432	731	4277	50%	778	3791	19	115	40	14.0	98,798	104,249
09-Jul	608	653	1261	9111	279	327	606	4883	48%	646	4437	18	133	42	13.5	110,640	120,607
10-Jul	329	363	692	9803	167	178	345	5228	50%	897	5334	24	157	68	12.9	117,161	129,583
11-Jul	219	245	464	10267	84	149	233	5461	50%	1185	6519	30	187	89	12.0	121,499	135,602
12-Jul	227	370	597	10864	148	150	298	5759	50%	813	7332	21	208	53	11.8	127,101	143,347

Table D-3. The data used to derive the in-season sockeye salmon escapment estimates for the Nass River, 1999. These are preliminary data as presented during the season; refer to Appendix B for complete catch and tag totals.

	Fishwheel Catch				Fishwheel Tags					Grease Harbour (FW3&4)						In-season estimates	
Date	Daily FW1	Daily FW2	Total	Cum. catch	Daily FW1	Daily FW2	Total	Cum. tagged	Prop. tagged	Catch (incl. rcps)	Cum. catch	Raw Recaps	Cum. recaps	Adj. Recaps	Exp. Factor	Mark-Recap.	Expansion factor (fw1&2; 94-97)
13-Jul	143	314	457	11321	73	158	231	5990	51%	697	8029	44	252	93	9.8	131,836	149,275
14-Jul	100	206	306	11627	76	80	156	6146	51%	859	8888	41	293	76	9.4	135,375	153,245
15-Jul	144	338	482	12109	75	166	241	6387	50%	699	9587	34	327	50	9.4	141,026	160,574
16-Jul	172	448	620	12729	101	231	332	6719	54%	746	10333	48	375	55	9.3	148,814	171,386
17-Jul	196	386	582	13311	100	194	294	7013	51%	714	11047	32	407	43	9.4	156,641	181,535
18-Jul	83	197	280	13591	67	73	140	7153	50%	814	11861	37	444	72	10.4	160,663	186,418
19-Jul	47	169	216	13807	25	83	108	7261	50%	567	12428	12	456	25	11.6	163,780	190,184
20-Jul	80	264	344	14151	63	134	197	7458	57%	468	12896	17	473	31	11.7	168,125	196,183
21-Jul	124	381	505	14656	72	188	260	7718	51%	535	13431	15	488	26	12.6	174,262	204,990
22-Jul	72	233	305	14961	44	127	171	7889	56%	415	13846	7	495	12	13.4	177,603	210,309
23-Jul	131	350	481	15442	74	161	235	8124	49%	454	14300	24	519	41	14.4	183,484	218,697
24-Jul	94	231	325	15767	65	93	158	8282	49%	400	14700	10	529	15	14.4	187,115	224,364
25-Jul	103	167	270	16037	39	96	135	8417	50%	753	15453	36	565	67	12.6	191,271	229,073
26-Jul	44	74	118	16155	30	28	58	8475	49%	484	15937	13	578	29	12.2	193,041	231,130
27-Jul	36	79	115	16270	10	49	59	8534	51%	318	16255	12	590	23	11.0	194,777	233,136
28-Jul	29	92	121	16391	25	39	64	8598	53%	168	16423	3	593	4	12.2	196,478	235,246
29-Jul	42	119	161	16552	15	65	80	8678	50%	97	16520	5	598	7	11.2	198,548	238,053
30-Jul	38	100	138	16690	14	52	66	8744	48%	278	16798	5	603	6	15.4	200,158	240,460
31-Jul	37	105	142	16832	23	59	82	8826	58%	406	17204	22	625	27	15.0	201,905	243,540
01-Aug	33	88	121	16953	27	47	74	8900	61%	380	17584	19	644	26	15.1	203,532	246,680
02-Aug	25	93	118	17071	13	64	77	8977	65%	180	17764	6	650	10	14.1	205,101	249,741
03-Aug	47	121	168	17239	1	79	80	9057	48%	208	17972	10	660	21	12.9	208,387	254,100
04-Aug	52	157	209	17448	1	117	118	9175	56%	222	18194	6	666	12	11.7	212,578	259,522
05-Aug	99	299	398	17846	49	141	190	9365	48%	128	18322	2	668	4	12.3	218,820	269,849
06-Aug	38	224	262	18108	17	118	135	9500	52%	145	18467	3	671	6	13.4	223,574	276,646
07-Aug	21	140	161	18269	17	66	83	9583	52%	44	18511	1	672	3	13.3	225,842	280,823
08-Aug	25	214	239	18508	7	111	118	9701	49%	49	18560	0	672	0	19.6	229,607	287,024
09-Aug	19	280	299	18807	10	126	136	9837	45%	57	18617	2	674	4	20.1	234,143	294,782
10-Aug	27	60	87	18894	13	41	54	9891	62%	211	18828	6	680	13	15.7	235,586	297,039
11-Aug	13	114	127	19021	11	58	69	9960	54%	241	19069	3	683	7	18.1	237,395	300,334
12-Aug	9	137	146	19167	7	55	62	10022	42%	292	19361	15	698	24	14.1	239,930	304,122
13-Aug	13	106	119	19286	8	59	67	10089	56%	231	19592	3	701	4	15.8	241,868	307,210
14-Aug	7	105	112	19398	7	52	59	10148	53%	226	19818	9	710	15	15.2	243,993	310,115
15-Aug	15	85	100	19498	5	49	54	10202	54%	200	20018	4	714	7	16.6	245,928	312,687
16-Aug	7	94	101	19599	0	57	57	10259	56%	169	20187	9	723	12	14.2	248,325	315,260
17-Aug	4	59	63	19662	3	44	47	10306	75%	176	20363	5	728	8	17.4	249,711	316,865
18-Aug	7	38	45	19707	6	25	31	10337	69%	160	20523	2	730	4	16.3	250,682	318,012

Table D-3. The data used to derive the in-season sockeye salmon escapment estimates for the Nass River, 1999. These are preliminary data as presented during the season; refer to Appendix B for complete catch and tag totals.

	Fishwheel Catch				Fishwheel Tags					Grease Harbour (FW3&4)						In-season estimates	
Date	Daily FW1	Daily FW2	Total	Cum. catch	Daily FW1	Daily FW2	Total	Cum. tagged	Prop. tagged	Catch (incl. rcps)	Cum. catch	Raw Recaps	Cum. recaps	Adj. Recaps	Exp. Factor	Mark-Recap.	Expansion factor (fw1&2; 94-97)
19-Aug	5	33	38	19745	0	10	10	10347	26%	129	20652	3	733	5	19.0	251,465	318,980
20-Aug	16	38	54	19799	11	31	42	10389	78%	121	20773	2	735	3	19.4	252,375	320,356
21-Aug	7	43	50	19849	4	35	39	10428	78%	89	20862	3	738	4	23.7	253,321	321,630
22-Aug	4	31	35	19884	4	26	30	10458	86%	113	20975	6	744	7	22.0	253,971	322,522
23-Aug	9	20	29	19913	7	18	25	10483	86%	82	21057	1	745	1	21.6	254,461	323,260
24-Aug	4	23	27	19940	2	17	19	10502	70%	43	21100	2	747	2	20.6	254,985	323,948
25-Aug	10	38	48	19988	8	34	42	10544	88%	57	21157	3	750	4	16.8	255,998	325,171
26-Aug	16	51	67	20055	9	36	45	10589	67%	80	21237	1	751	1	18.9	257,195	326,879
27-Aug	7	4	11	20066	7	2	9	10598	82%	57	21294	4	755	5	18.6	257,409	327,159
28-Aug	4	13	17	20083	2	10	12	10610	71%	55	21349	1	756	1	16.9	257,709	327,592
29-Aug	11	18	29	20112	10	15	25	10635	86%	29	21378	0	756	0	19.4	258,209	328,331
30-Aug	6	21	27	20139	5	19	24	10659	89%	40	21418	2	758	2	21.1	258,693	329,019
31-Aug	3	17	20	20159	3	13	16	10675	80%	39	21457	1	759	1	17.9	259,122	329,528
01-Sep	2	9	11	20170	0	5	5	10680	45%	37	21494	3	762	4	19.4	259,339	329,809
02-Sep	0	0	0	20170	0	0	0	10680	0%	25	21519	1	763	1	17.7	259,339	329,809
03-Sep	1	2	3	20173	1	2	3	10683	100%	44	21563	1	764	1	17.2	259,450	329,885
04-Sep	2	3	5	20178	1	2	3	10686	60%	23	21586	1	765	1	17.9	259,616	330,012
05-Sep	7	5	12	20190	3	1	4	10690	33%	39	21625	0	765	0	21.5	260,016	330,318
06-Sep	6	12	18	20208	5	10	15	10705	83%	60	21685	0	765	0	19.7	260,717	330,777
07-Sep	10	10	20	20228	6	10	16	10721	80%	69	21754	1	766	1	29.3	261,357	331,286
08-Sep	5	11	16	20244	3	9	12	10733	75%	41	21795	0	766	0	37.1	261,920	331,694
09-Sep	7	13	20	20264	3	8	11	10744	55%	31	21826	0	766	0	33.2	262,592	332,234
10-Sep	3	9	12	20276	0	4	4	10748	33%	37	21863	1	767	3	33.3	263,005	332,509
11-Sep	3	1	4	20280	0	1	1	10749	25%	21	21884	1	768	2	38.9	263,141	332,611
12-Sep	1	2	3	20283	0	2	2	10751	67%	12	21896	1	769	2	32.0	263,243	332,688
13-Sep	0	4	4	20287	0	1	1	10752	25%	11	21907	0	769	0	35.2	263,304	332,790
14-Sep	1	0	1	20288	1	0	1	10753	100%	12	21919	0	769	0	33.6	263,323	332,815
15-Sep	0	0	0	20288	0	0	0	10753	0%	14	21933	0	769	0	34.4	263,323	332,815
16-Sep	0	1	1	20289	0	1	1	10754	100%	5	21938	0	769	0	34.0	263,342	332,841
17-Sep	1	1	2	20291	1	0	1	10755	50%	23	21961	0	769	0	34.2	263,378	332,892
18-Sep	0	0	0	20291	0	0	0	10755	0%	10	21971	1	770	1	15.1	263,378	332,892
19-Sep	0	0	0	20291	0	0	0	10755	0%	11	21982	0	770	0	19.8	263,378	332,892
20-Sep	0	0	0	20291	0	0	0	10755	0%	14	21996	0	770	0	17.5	263,378	332,892
21-Sep	0	2	2	20293	0	0	0	10755	0%		21996		770		18.6	263,378	332,943
22-Sep	4	7	11	20304	0	0	0	10755	0%		21996		770		18.0	263,378	333,223
23-Sep	1	3	4	20308	0	0	0	10755	0%		21996		770		18.3	263,378	333,325
24-Sep	1	3	4	20312	0	0	0	10755	0%		21996		770		18.2	263,378	333,427

Table D-3. The data used to derive the in-season sockeye salmon escapment estimates for the Nass River, 1999. These are preliminary data as presented during the season; refer to Appendix B for complete catch and tag totals.

	Fishwheel Catch				Fishwheel Tags					Grease Harbour (FW3&4)						In-season estimates	
Date	Daily FW1	Daily FW2	Total	Cum. catch	Daily FW1	Daily FW2	Total	Cum. tagged	Prop. tagged	Catch (incl. rcps)	Cum. catch	Raw Recaps	Cum. recaps	Adj. Recaps	Exp. Factor	Mark-Recap.	Expansion factor (fw1&2; 94-97)
25-Sep	1	0	1	20313	0	0	0	10755	0%		21996		770		18.2	263,378	333,452
26-Sep	0	2	2	20315	0	0	0	10755	0%		21996		770		18.2	263,378	333,503
27-Sep	1	0	1	20316	0	0	0	10755	0%		21996		770		18.2	263,378	333,529
28-Sep	0	0	0	20316	0	0	0	10755	0%		21996		770		18.2	263,378	333,529
29-Sep	0	0	0	20316	0	0	0	10755	0%		21996		770		18.2	263,378	333,529
30-Sep	0	3	3	20319	0	0	0	10755	0%		21996		770		18.2	263,378	333,605
Total	7011	13308	20319		3753	7002	10755		53%	21996		770					

Note 1: Lower wheels started on 7 June (FW2 at 18:50 hr and FW1 at 10:15 hr) and Upper wheels started on 7 June (FW4 at 12:00 hr) and 8 June (FW3 at 14:00).

Note 2: Shading represents non-operation of fishwheels. Extreme high water stopped all wheels from fishing between 11 and 22 June. Grease Harbour wheels were out of operation from 11-24 June (FW3 & 4), 26-28 June (FW3), 26-30 June (FW4).

APPENDIX E

Age and length data from fish captured in the Nass River fishwheels, 1999

Table E-1. Numbers of fish by age and length for chinook salmon sampled at the Nass River fishwheels, 1999.

Nose-fork	Numbers of fish by age class										Total	Fish sampled but not aged [a]					Total	Percent
length (cm)	21	32	42	43	51	52	53	62	63	72	aged	1M	2M	3M	4M	RG	not aged	not aged
31	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
36	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	100
38	0	3	0	0	0	0	0	0	0	0	3	3	0	0	0	0	3	50
39	0	6	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0
40	1	5	0	0	0	0	0	0	0	0	6	0	0	0	0	1	1	14
41	0	11	0	0	0	0	0	0	0	0	11	1	0	0	0	0	1	8
42	0	9	0	0	0	0	0	0	0	0	9	1	0	0	0	0	1	10
43	0	4	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0
44	0	6	0	0	0	0	0	0	0	0	6	1	0	0	0	1	2	25
45	0	4	2	0	0	0	0	0	0	0	6	2	0	0	0	0	2	25
46	0	6	0	0	0	0	0	0	0	0	6	1	0	0	0	0	1	14
47	0	5	0	0	0	0	0	0	0	0	5	0	0	0	0	1	1	17
48	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
49	0	3	0	1	0	0	0	0	0	0	4	2	0	0	0	0	2	33
50	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
51	0	6	0	1	0	0	0	0	0	0	7	0	0	0	0	0	0	0
52	0	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	2	67
54	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
55	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	1	50
56	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	1	50
57	0	2	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
58	0	1	3	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0
59	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	1	1	33
60	0	0	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
61	0	0	2	0	0	0	0	0	0	0	2	0	1	0	0	0	1	33
62	0	0	4	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0
63	0	0	5	0	0	0	0	0	0	0	5	0	1	0	0	0	1	17
64	0	0	3	0	0	1	0	0	0	0	4	0	1	0	0	0	1	20
65	0	0	9	0	0	0	0	0	0	0	9	0	1	0	0	0	1	10

Table E-1. Numbers of fish by age and length for chinook salmon sampled at the Nass River fishwheels, 1999.

Nose-fork	Numbers of fish by age class										Total	Fish sampled but not aged [a]					Total	Percent
length (cm)	21	32	42	43	51	52	53	62	63	72	aged	1M	2M	3M	4M	RG	not aged	not aged
66	0	0	8	0	0	0	0	0	0	0	8	0	2	1	0	0	3	27
67	0	0	10	0	0	1	0	0	0	0	11	0	3	0	0	0	3	21
68	0	1	6	0	0	1	0	0	0	0	8	0	2	0	2	0	4	33
69	0	0	8	0	0	0	0	0	0	0	8	0	4	0	0	0	4	33
70	0	0	10	0	0	0	0	0	0	0	10	0	1	0	0	1	2	17
71	0	0	10	0	0	0	0	1	0	0	11	0	2	0	0	0	2	15
72	0	0	9	0	0	0	0	0	0	0	9	0	2	0	0	1	3	25
73	0	0	10	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0
74	0	0	9	0	0	0	0	0	0	0	9	0	0	1	0	0	1	10
75	0	0	6	0	0	4	1	0	0	0	11	0	0	0	0	0	0	0
76	0	0	3	0	0	2	0	0	0	0	5	0	2	0	0	1	3	38
77	0	0	3	0	0	1	0	1	0	0	5	0	0	0	1	0	1	17
78	0	0	2	0	0	6	0	1	0	0	9	0	0	0	0	0	0	0
79	0	0	1	0	0	3	0	0	0	0	4	0	0	3	0	0	3	43
80	0	0	2	0	0	5	0	0	0	0	7	0	0	1	0	0	1	13
81	0	0	1	0	0	6	0	0	0	0	7	0	0	1	0	0	1	13
82	0	0	1	0	0	10	0	2	0	0	13	0	0	2	0	0	2	13
83	0	0	2	0	1	10	0	0	0	0	13	0	0	2	0	1	3	19
84	0	0	1	0	0	14	0	1	0	0	16	0	0	0	0	0	0	0
85	0	0	2	0	0	16	0	0	0	0	18	0	0	6	0	0	6	25
86	0	0	0	0	0	20	0	3	0	0	23	0	0	1	0	0	1	4
87	0	0	0	0	0	14	0	1	0	0	15	0	0	2	0	1	3	17
88	0	0	1	0	0	17	0	3	1	0	22	0	0	6	0	3	9	29
89	0	0	0	0	0	11	0	2	0	0	13	0	0	2	1	0	3	19
90	0	1	1	0	0	12	0	4	0	0	18	0	0	0	0	1	1	5
91	0	0	0	0	0	10	0	6	0	0	16	0	0	1	1	0	2	11
92	0	0	0	0	0	8	0	11	1	0	20	0	0	4	2	1	7	26
93	0	0	0	0	0	4	0	5	0	0	9	0	0	2	1	0	3	25
94	0	0	0	0	1	4	0	7	0	0	12	0	0	0	1	1	2	14
95	0	0	0	0	0	4	0	2	0	0	6	0	0	1	3	0	4	40

Table E-1. Numbers of fish by age and length for chinook salmon sampled at the Nass River fishwheels, 1999.

Nose-fork	Numbers of fish by age class										Total	Fish sampled but not aged [a]					Total	Percent
length (cm)	21	32	42	43	51	52	53	62	63	72	aged	1M	2M	3M	4M	RG	not aged	not aged
96	0	0	0	0	0	1	0	5	0	0	6	0	0	2	2	1	5	45
97	0	0	0	0	0	4	0	2	0	0	6	0	0	0	3	0	3	33
98	0	0	1	0	0	2	0	2	0	0	5	0	0	0	0	0	0	0
99	0	0	0	0	0	2	0	2	0	0	4	0	0	0	1	0	1	20
100	0	0	0	0	0	1	0	1	0	0	2	0	0	0	1	0	1	33
101	0	0	0	0	0	2	0	3	0	0	5	0	0	0	3	0	3	38
102	0	0	0	0	0	0	0	3	0	1	4	0	0	0	1	0	1	20
103	0	0	0	0	0	0	0	3	0	1	4	0	0	0	0	0	0	0
104	0	0	0	0	0	1	0	2	0	0	3	0	0	0	0	0	0	0
105	0	0	0	0	1	0	0	2	0	0	3	0	0	0	1	0	1	25
106	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	1	50
107	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0
108	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	1	50
109	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	100
112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	100
Totals	1	81	142	3	3	197	1	81	2	2	513	14	24	38	27	17	120	19
Percent	0.2	15.8	27.7	0.6	0.6	38.4	0.2	15.8	0.4	0.4	100.0							

[a] Age error codes: M refers to marine annuli, the numbers refer to the number of marine annuli and RG is regenerated regenerated scale.

Table E-2. Numbers of fish by age and length for sockeye salmon sampled at the Nass River fishwheels, 1999.

Nose-fork	Numbers of fish by age class										Number of fish sampled but could not be aged[a]							Percent
length (cm)	31	32	41	42	43	52	53	62	63	Total	1M	2M	3M	RG	S2	S3	Total	not aged
45	3									3							0	0
46	1									1							0	0
47				3						3							0	0
48							1			1				1			1	50
49	1			1			1			3				1			1	25
50				5			4			9							0	0
51	3			13			11			27		4		1			5	16
52			3	26		1	8			38							0	0
53	1			19			12			32		3	1				4	11
54			1	30		1	30			62		2		1			3	5
55	1		2	49	1	1	44		1	99		6					6	6
56	1			53		1	51		1	107		11	1		1		13	11
57		1	4	63	1	1	52			122		5	1	2		1	9	7
58	1		4	76		7	68		3	159		8		4	1	1	14	8
59	1		7	63		6	81		1	159		5	1	2		1	9	5
60			1	54		13	104		3	175		8	1	3		1	13	7
61	2		5	59		16	104		4	190		11	1	1		1	14	7
62			6	41		25	93		12	177		12	3				15	8
63			5	25		30	62		7	129		5	4	1	1		11	8
64			5	21	1	34	58		3	122		5	2	2			9	7
65	1		2	15		34	33		10	95		5	3	4			12	11
66			1	6		23	22		8	60		2	3				5	8
67			1	2		34	13		13	63		1	2	2			5	7
68				5		16	9		12	42			2	2			4	9
69				4		14	5		10	33			1				1	3
70						10	2	1	12	25			1	1			2	7
71						9			5	14							0	0
72						1			4	5						1	1	17
73									2	2			1				1	33
76						1				1							0	0
Totals	16	1	47	633	3	278	868	1	111	1958	0	93	28	28	3	6	158	7

[a] Age error codes: 1M, 2M, 3M, refers to 1, 2 or 3 marine annuli; RG, regenerated; S2, sub-two (1 fresh water annulus); S3, sub-three (2 fresh water annuli).

Table E-3. Summary of weekly age composition of sockeye salmon sampled at the Nass River fishwheels, 1999.

Week ending	Stat. week	Portion of total run	Numbers of fish by age class											Proportions by week									
			31	32	41	42	43	52	53	62	63	64	Totals	31	32	41	42	43	52	53	62	63	64
12-Jun	24	0.0022	0	0	3	1	0	17	3	0	4	0	28	0.00	0.00	0.11	0.04	0.00	0.61	0.11	0.00	0.14	0.00
19-Jun	25	0.0000	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26-Jun	26	0.0998	2	0	12	20	0	48	23	0	7	0	112	0.02	0.00	0.11	0.18	0.00	0.43	0.21	0.00	0.06	0.00
03-Jul	27	0.1545	8	0	22	68	0	42	85	0	6	0	231	0.03	0.00	0.10	0.29	0.00	0.18	0.37	0.00	0.03	0.00
10-Jul	28	0.2208	5	0	9	190	0	77	235	0	14	0	530	0.01	0.00	0.02	0.36	0.00	0.15	0.44	0.00	0.03	0.00
17-Jul	29	0.1386	1	0	0	134	0	34	141	1	12	0	323	0.00	0.00	0.00	0.41	0.00	0.11	0.44	0.00	0.04	0.00
24-Jul	30	0.1207	0	0	1	95	1	27	113	0	12	0	249	0.00	0.00	0.00	0.38	0.00	0.11	0.45	0.00	0.05	0.00
31-Jul	31	0.0604	0	0	0	39	0	12	67	0	4	0	122	0.00	0.00	0.00	0.32	0.00	0.10	0.55	0.00	0.03	0.00
07-Aug	32	0.0818	0	0	0	38	0	12	71	0	15	0	136	0.00	0.00	0.00	0.28	0.00	0.09	0.52	0.00	0.11	0.00
14-Aug	33	0.0597	0	1	0	25	0	9	55	0	20	0	110	0.00	0.01	0.00	0.23	0.00	0.08	0.50	0.00	0.18	0.00
21-Aug	34	0.0249	0	0	0	8	1	2	33	0	5	0	49	0.00	0.00	0.00	0.16	0.02	0.04	0.67	0.00	0.10	0.00
28-Aug	35	0.0154	0	0	0	5	0	1	17	0	5	0	28	0.00	0.00	0.00	0.18	0.00	0.04	0.61	0.00	0.18	0.00
04-Sep	36	0.0068	0	0	0	8	0	0	10	0	4	0	22	0.00	0.00	0.00	0.36	0.00	0.00	0.45	0.00	0.18	0.00
11-Sep	37	0.0109	0	0	0	5	1	0	16	0	3	0	25	0.00	0.00	0.00	0.20	0.04	0.00	0.64	0.00	0.12	0.00
18-30 Sep	38-40	0.0037	0	0	0	1	0	0	4	0	0	0	5	0.00	0.00	0.00	0.20	0.00	0.00	0.80	0.00	0.00	0.00
Totals		1.0000	16	1	47	637	3	281	873	1	111	0	1970	0.01	0.00	0.02	0.32	0.00	0.14	0.44	0.00	0.06	0.00
														Proportions weighted by portion of run:									
														0.010	0.001	0.030	0.314	0.001	0.152	0.436	0.000	0.057	0.000

Table E-4. Summary of the numbers and mean lengths (nose-fork, cm) of successfully aged sockeye salmon from the Nass River fishwheel catch, 1999.

	June			July			August			September			Total		
Age class	N	Mean	SD[a]	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD
31	8	53.4	8.0	8	53.0	4.9							16	53.2	6.4
32							1	57.0					1	57.0	
41	34	59.6	3.7	13	61.7	3.4							47	60.2	3.7
42	52	59.2	3.9	492	58.1	3.7	82	58.0	7.0	8	59.3	3.9	634	58.2	4.3
43				1	57.0		1	55.0		1	64.0		3	58.7	4.7
52	86	64.8	2.6	168	64.7	3.7	24	62.8	3.9				278	64.6	3.4
53	57	59.9	3.2	606	59.9	3.7	177	60.1	3.9	28	59.1	3.5	868	59.9	3.7
62				1	70.0								1	70.0	
63	15	63.3	3.7	44	65.0	3.7	49	68.0	3.1	3	63.3	3.8	111	66.0	3.9
Totals	252	61.4	4.5	1333	60.0	4.4	334	60.9	5.7	40	59.6	3.7	1959	60.3	4.6

[a] Standard deviation

Table E-5. Numbers of fish by age and length for coho salmon sampled at the Nass River fishwheels, 1999.

Nose-fork	Numbers of fish by age class			Total	Fish sampled but not aged [a]		Total	Percent
length (cm)	32	43	54	aged	1M	RG	not aged	not aged
37	0	1	0	1	0	0	0	0
40	3	0	0	3	0	0	0	0
41	3	0	0	3	2	0	2	40
42	4	1	0	5	1	0	1	17
43	5	1	0	6	3	0	3	33
44	4	2	0	6	5	0	5	45
45	10	6	0	16	7	4	11	41
46	7	7	0	14	9	2	11	44
47	11	8	0	19	6	0	6	24
48	13	7	0	20	3	1	4	17
49	11	5	0	16	9	0	9	36
50	4	8	0	12	11	1	12	50
51	11	14	0	25	11	0	11	31
52	11	6	0	17	9	1	10	37
53	8	11	0	19	4	2	6	24
54	17	4	0	21	8	2	10	32
55	10	7	0	17	12	4	16	48
56	13	5	0	18	10	3	13	42
57	21	10	0	31	9	0	9	23
58	16	11	0	27	12	0	12	31
59	20	13	0	33	18	0	18	35
60	22	12	0	34	13	2	15	31
61	24	16	0	40	18	0	18	31
62	35	15	0	50	18	1	19	28
63	32	22	0	54	19	0	19	26
64	34	12	0	46	23	4	27	37
65	23	15	0	38	15	1	16	30
66	25	20	0	45	15	1	16	26
67	17	21	0	38	17	0	17	31
68	14	12	0	26	13	0	13	33
69	13	11	0	24	9	0	9	27
70	6	9	1	16	8	0	8	33
71	6	6	0	12	1	0	1	8
72	6	3	0	9	4	0	4	31
73	5	3	0	8	1	0	1	11
74	0	0	0	0	1	0	1	100
75	0	1	0	1	1	1	2	67
76	0	0	0	0	2	0	2	100
77	1	0	0	1	0	0	0	0
80	1	0	0	1	0	0	0	0
81	0	0	0	0	1	0	1	100
92	0	1	0	1	0	0	0	0
99	1	0	0	1	0	0	0	0
Total	467	306	1	774	328	30	358	32
Percent	60.3	39.5	0.1					

[a] Age error codes: M refers to marine annuli, the numbers refer to the number of marine annuli and RG is regenerated scale.